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PIONEERS IN THE MANUFACTURE OF THRESHING MACHINERY

The Western Company, Akron, O.



MASSILLON MUSEUM

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Mandy Atkins Pond
July 2012

ESTABLISHED 1842

The Russell & Company

Office and Factory, MASSILLON, OHIO

OFFICERS

J. W. McCLYMONDS, President.
C. M. RUSSELL, Vice-President.
E. C. MERWIN, 2d Vice-Prest. and Sec'y.
JESSE J. PITTS, Treasurer.
C. O. HEGGEM, Superintendent.

BUILDERS OF

ENGINES, THRESHERS, HORSE POWERS

SAW MILLS, PNEUMATIC STACKERS

BAND CUTTERS & SELF FEEDERS, Etc.



Besides the following Branch Offices and General Selling Agencies, we have general agents in every important territory in the United States, with Sample Machinery and Repairs.

BRANCH HOUSES:

SPRINGFIELD, }
CHAMPAIGN, } ILLINOIS.
PEORIA, }
INDIANAPOLIS, INDIANA.
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SELLING AGENCIES:

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LINDSAY BROS., Milwaukee, Wisconsin.
THE ARBUCKLE-RYAN CO., Toledo, Ohio.
THE F. P. HARBAUGH CO., St. Paul, Minn.
THE CLARK IMPLEMENT CO., Council Bluffs, Iowa.
THE A. H. AVERILL, MACHINERY CO., Portland, Oregon.
G. O. RICHARDSON MACHINERY CO., St. Joseph, Missouri.
THE MASSILLON ENGINE & THRESHER CO., Chattanooga, Tenn.

THE RUSSELL & COMPANY



The Works of The Russell & Company, Massillon, Ohio.

Greeting

SIXTY-THIRD YEAR.

IN compiling this 63rd Year Book, we have endeavored, by table of dimensions, illustrations from photographs and some necessary descriptive matter, to enable our customers to form, as nearly as possible, as good an idea of the machinery as though they had examined it. We will add no embellishments. We are satisfied to let the machinery stand on its own merits. The general design and important principles being established, it is the union in both material and workmanship that has made our goods deservedly popular. We hope to maintain this high standard; and realizing that success is seldom the result of accident, but must be constantly striven for, we shall continue the following out of our past progressive policy.

We have the most modern factory, supported by the best mechanical skill, and our numerous connections and branches insure prompt delivery to all parts of the United States. We beg to ask a careful examination of our machinery, or reading of the following pages, and if you are interested in anything in our line, we trust to be favored with your correspondence or personal call.

It gives us pleasure to welcome our customers at our factory, and a cordial invitation is extended to all old and new patrons to visit us.

Yours truly,

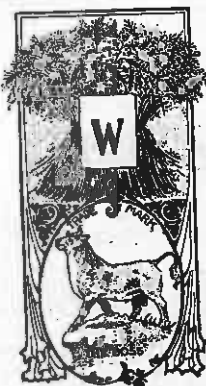
The Russell & Company.

Massillon, Ohio, January 1st, 1904.



THE RUSSELL & COMPANY

TESTIMONIALS.



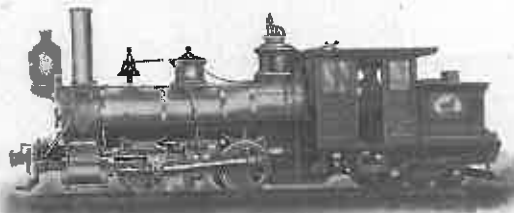
We are grateful to our many friends who have favored us with voluntary testimonials and photographs of their engines and threshers purchased of us, and have taken the liberty of publishing some of these letters in the threshing machine journals and in pamphlet form. We will appreciate the receipt of additional ones and hope to have them. Years ago we devoted considerable space in our Year Book to the display of such letters, but discontinued their general use when the patent medicine business made such advertising of little force, if not altogether ridiculous. We believe the present intelligent buyer is more interested in seeing or having described the machinery itself. After all, the goods must have such merit as to "speak for themselves." We can refer prospective buyers, who have never used our goods, to persons operating them, in almost every section of the country—the best possible testimonials.



Lines of Communication.

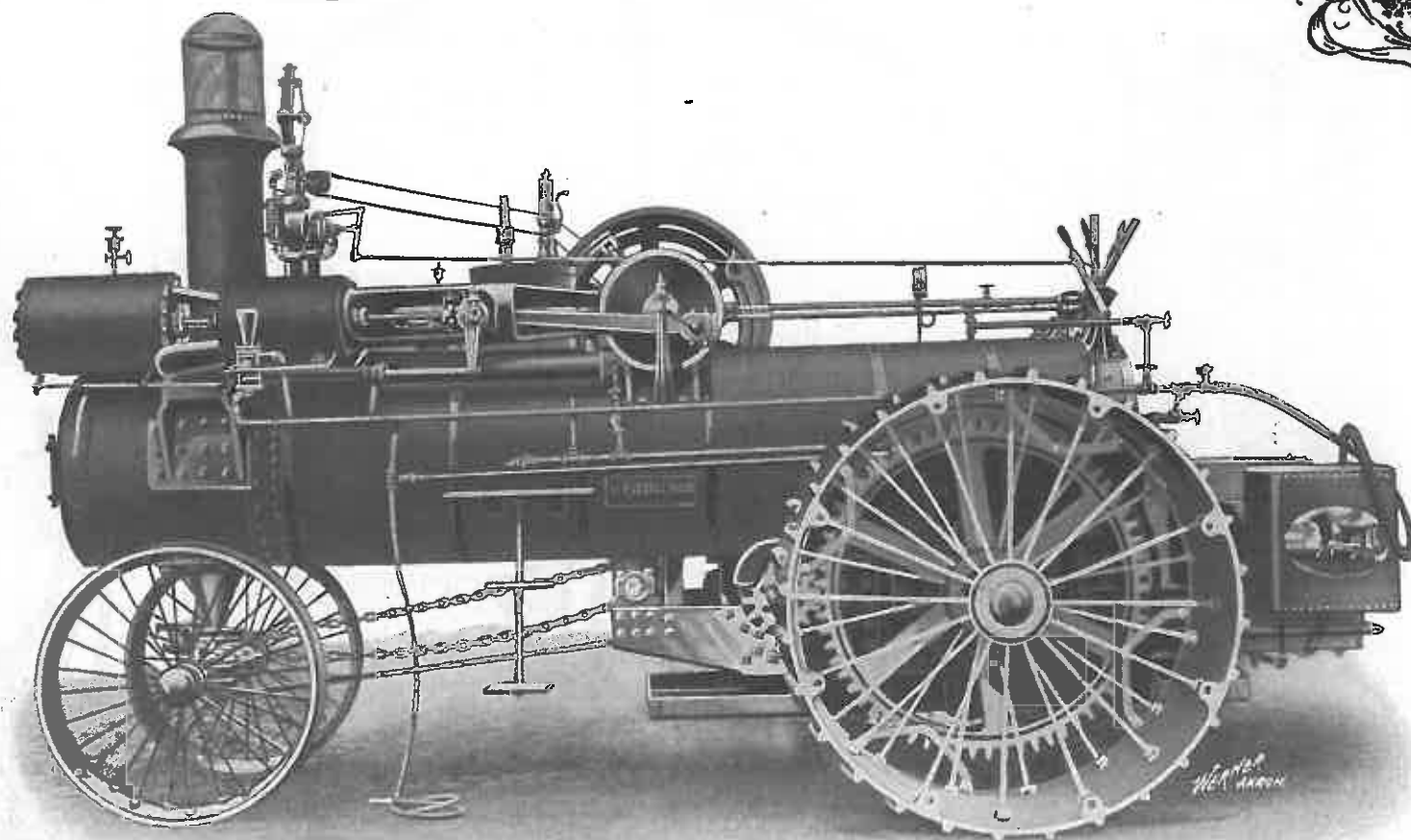
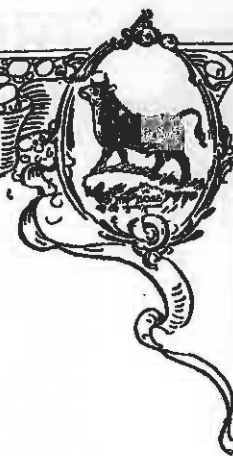
Realizing the importance of prompt dispatch, made necessary by the marvelous progress in methods of communication between the people during the past century, and in keeping with modern practice, we have connected our office with both the great commercial telegraph systems, the long distance telephone and the best of mail service. All communications will receive prompt and courteous attention.

Shipping Facilities.



We have tracks of our own, connecting our yards with the three railroad systems diverging from Massillon, a modern loading apparatus, a locomotive for switching, and the best of arrangements for getting prompt car service from the competing lines. We spare no pains or expense to expedite shipments, and in order to give our customers the advantage of the best possible combination of freight rates promptly, we maintain a Freight Department fully equipped with all classifications and tariffs.

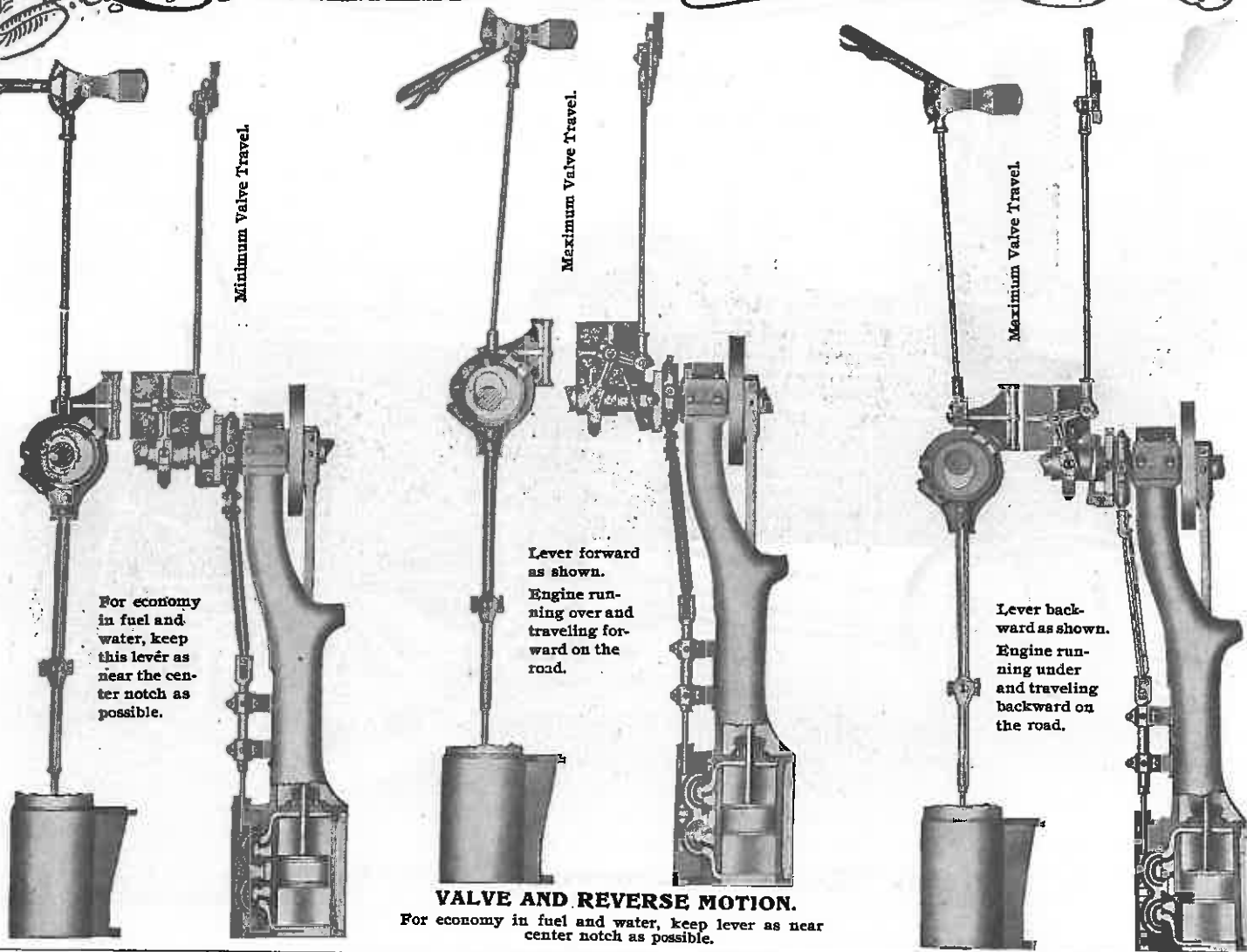
THE RUSSELL & COMPANY



The "Russell" Compound Traction Engine.

Size shown in cut: $7\frac{1}{4}$ " x 11" x 12", on Universal Boiler.

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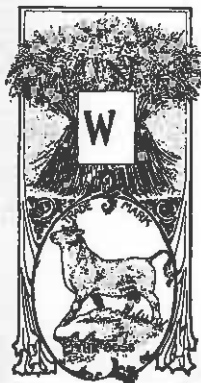


VALVE AND REVERSE MOTION.

For economy in fuel and water, keep lever as near center notch as possible.

THE RUSSELL & COMPANY

THE COMPOUND ENGINE—MOST POPULAR TYPE.



We have been building the Compound Farm Traction Engine for the past ten years, ever since the general introduction of the Wind Stacker and Self Feeder created a demand for more power without additional weight on the road. They have been a great success, until now we sell three Compounds to one single cylinder Engine. But there are essential features about OUR Engines that no others have; and our Compound Engines are not to be confounded with some others on the market. First our competitors condemned this style of Engine because they had none to sell, then, when they found it was a success and that the threshermen

WOULD have them, they all fell to making them, and having nothing to go by, took up with anything at hand, with the result that the majority are complete failures, as far as getting any real advantage out of the compound feature is concerned. We ask our customers not to judge of this style of Engine from the results obtained by such failures. Buy the original Russell Compound and you will not regret it. A saving of one-third in fuel and water is obtainable. Increased power without additional weight, and this saving in fuel, constitute the principal claims for this style Engine.

As the originators of this type of Traction and Portable Farm Engines, it has been our practice for several years past to devote a large portion of our year-book to arguments in favor of and in explanation of the principles involved.

Its introduction has now become so general and it has been so fully discussed and explained in the various papers and journals devoted to the interest of the Threshermen, we feel it is no longer necessary to consume the time and patience of the reader with lengthy discussions and examples, the large proportion of sales of this particular style of Engine indicating this as no longer being necessary.

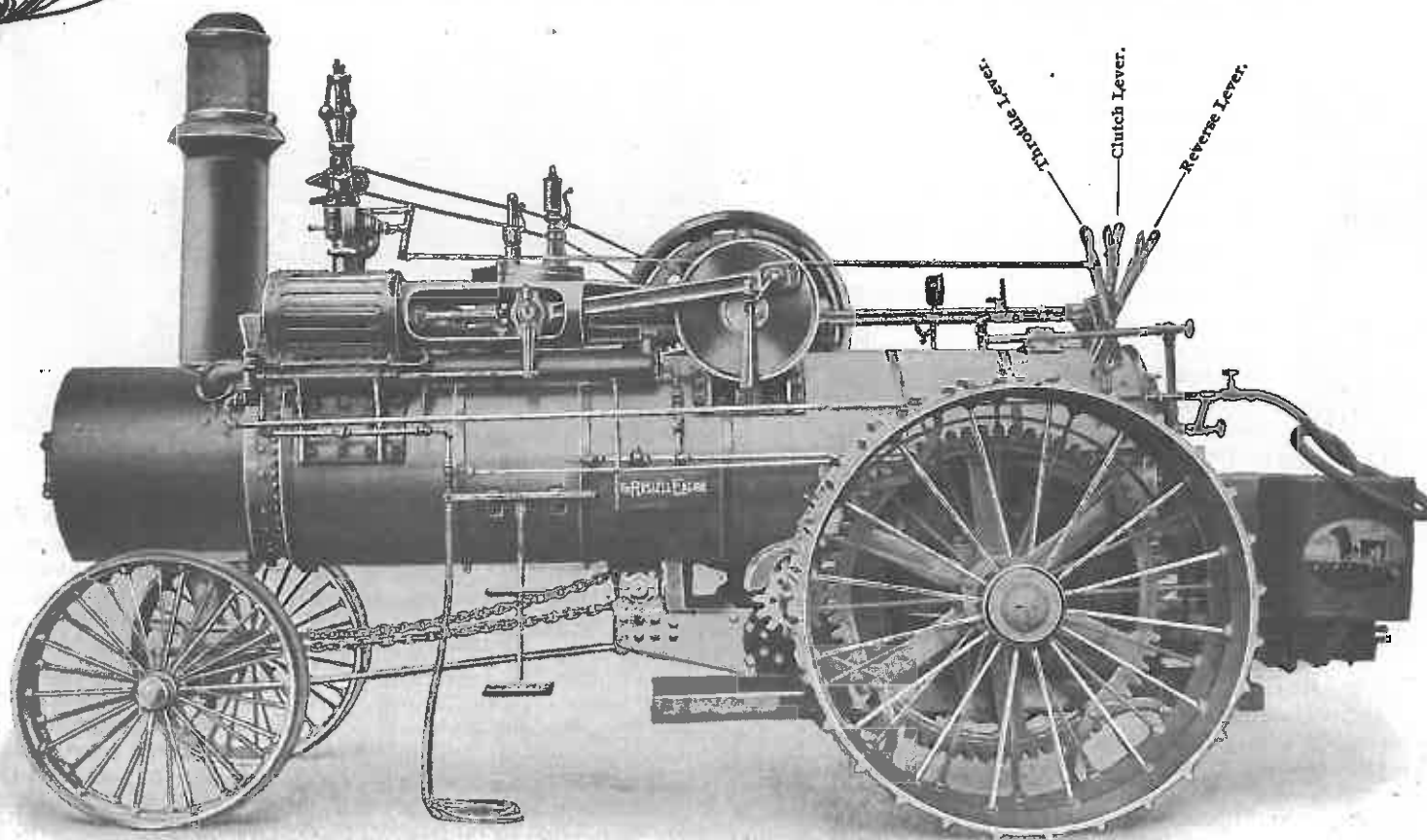
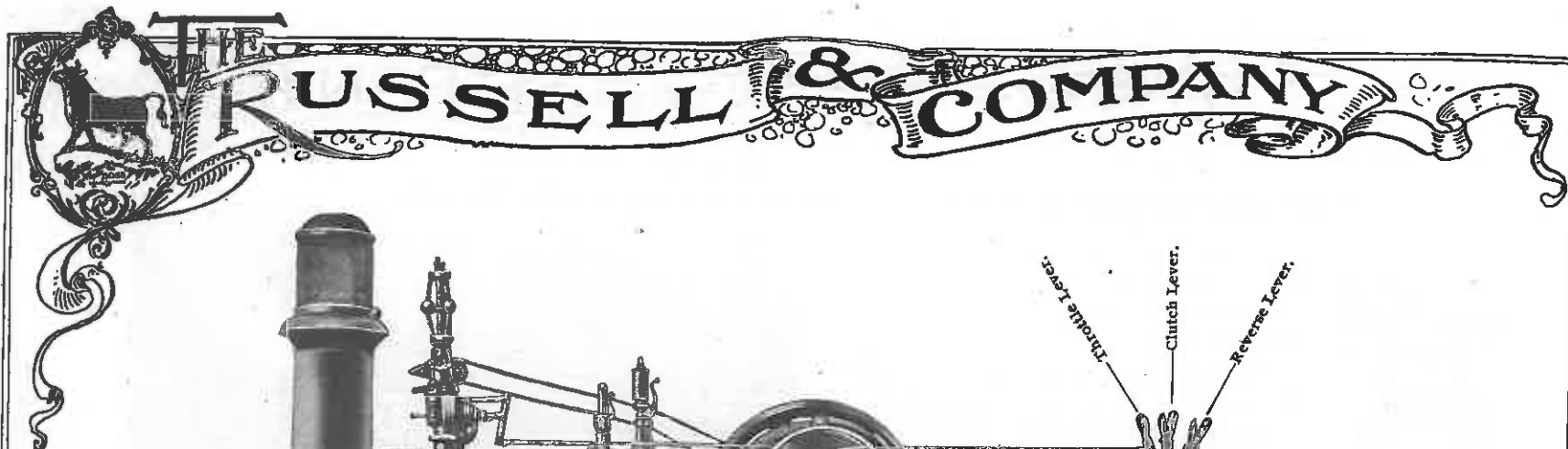


7 1/2 x 11 x 12 Compound Russell Traction Engine, Hauling 30 Tons Tee Iron, Asheville, N. C.

At the risk of repeating to some extent what has already become well known we will take some space to explain our claim of being the best equipped and hence most able to successfully launch double expansion engines in the farm engine field.

By reason of our excellent Engineering Department, with its record of success in the wide field of automatic engine building, we were thoroughly conversant with the Compound Engine in its various forms. To the knowledge thus possessed we added through our Farm Department a perfect familiarity with the requirements of those using Farm Engines. Either alone would have enabled us to build an engine, but the two were needed to bring out the engine best adapted to the field to be occupied. Neither theory alone, nor the mere knowledge of the field to be occupied, would have met the case. To knowledge of what is wanted must be added the knowledge how best to meet that want.

It is no idle boast to say that this combined knowledge is at our disposal; that without both branches we could never have achieved our present success. Mere copying will not suffice



The "Russell" Traction Engine. Single Cylinder.

Size shown in cut 9" x 13" with Jacket, mounted on Universal Boiler. With 66" x 24" Rear Ground Wheels.

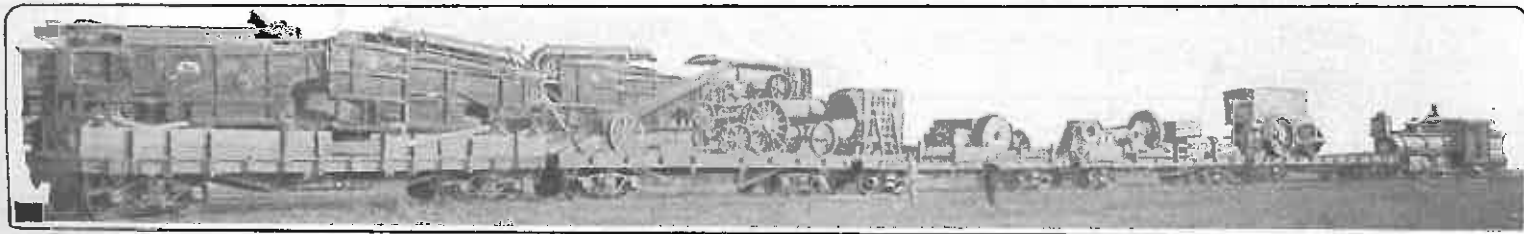
THE RUSSELL & COMPANY

THE COMPOUND ENGINE—Continued.

to meet the case. There must be a reason back of every component part and practice. The lack of this will explain many failures.

The attempt to make two cylinders out of one by a central head and enlarged piston rod is an old and always unsuccessful device, since the extreme changes of temperature, with the mass of metal to be reheated at the expense of power and then cooled at a like expense, are fatal to economy. The leakage past the central head, while concealed, is none the less an ever-present evil in this type of engine. Yet some manufacturers, forced by the demand for

effective work, has too little energy to count largely in results. With such engines 140 to 150 pounds in the cylinder is considered normal; when pressure largely exceeds this, Triple-Expansion comes into use, and at still higher pressure, Quadruple, accompanied in these cases, as commonly in Double-Expansion, with means for creating a vacuum by condensing the steam on the exhaust side of the piston while using pressure on the other side. These are yet impracticable in farm engineering, but Double-Expansion is most successful.



A MISCELLANEOUS SHIPMENT.

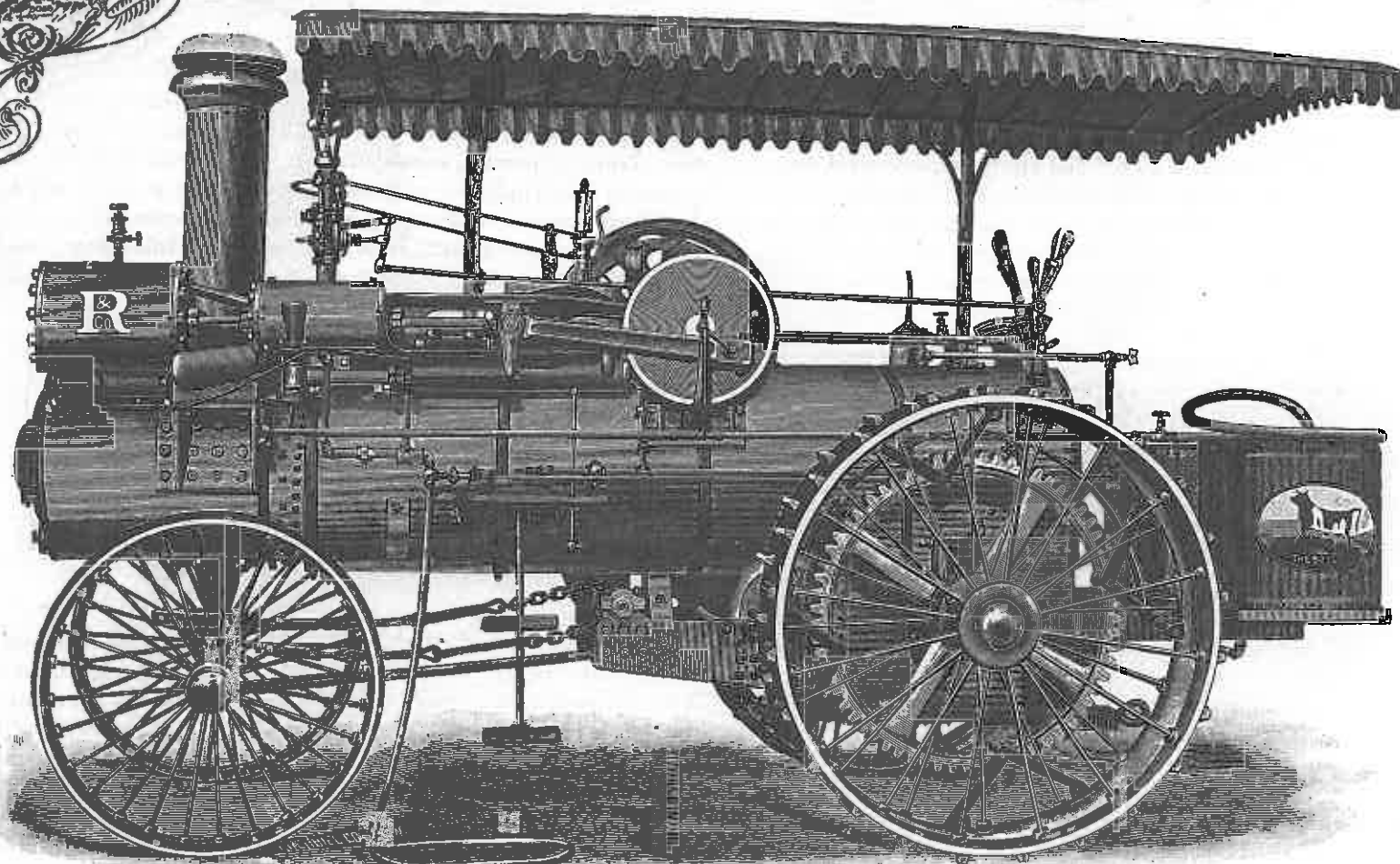
Compound Engines, have resorted to this antiquated and unreliable pattern.

A Double-Expansion Engine is one which, after the steam has been exhausted or driven out of the first cylinder, uses so much of remaining energy as can be made available in a second cylinder of larger area, the piston of which acts upon the rotating parts, in accord with the piston of the first cylinder.

To be valuable, such engines must be supplied with steam at a pressure considerably in excess of that which would be economical in a Single-Expansion Engine, else the steam, after its first

The design we adopt is the Tandem as opposed to the Cross-Compound. In the Tandem the cylinders are placed end to end, with one valve stem, one piston rod, one cross head and one crank. In the Cross-Compound the cylinders are placed opposite each other, each being provided with a piston and valve rod, independent cross heads and cranks, and this with not a single advantage, but very many disadvantages. Our choice was not difficult under these circumstances. In detail we follow closely our Single-Expansion Engines. We use the balance valve especially necessary in a compound with its large valve surface, where the ordinary

THE RUSSELL & COMPANY



The "Russell" Compound Traction Engine.

Furnished in $5\frac{1}{2}$ " x 8" x 8", 6" x 9" x 10", $6\frac{1}{2}$ " x 10" x 10" and $7\frac{1}{4}$ " x 11" x 12" sizes.
(Size shown in cut: 6" x 9" x 10", with Jacket and Engineer's Canopy, on Coal or Wood-Burner Boiler.)



THE "RUSSELL" COMPOUND ENGINE—Continued.

valve would be very undesirable, the adjustable cut-off with any one of several adjustments, one-third, one-half, five-eighths or three-fourths cut-off, as the work being done requires, and at the pleasure of the engineer, increasing materially the economical range of the engine.

We urge at least 150 pounds boiler pressure, and 160 is better. This is a higher pressure than could be economically employed in the Single-Expansion Engine for reasons already given. By compounding a good degree of expansion is obtained, while the loss of temperature is divided and an excessive change avoided in either cylinder.

We build the boilers of all our Compound Engines expressly for the high pressure to be carried, and they are safer at the limit allowed than are the older boilers and engines at their limit. The smaller amount of water required renders the water question easier of solution, and less of sediment and scale accumulates.

The government test of 225 pounds is rigidly adhered to on all of these boilers. Specially prepared gauges, safety valves and trimmings make these as safe as an engine and boiler can be made.

In respect to convenience the "Russell" Compound stands high. No inaccessible parts annoy the engineer. Lubrication by our "Boss Lubricant" is easy and certain. On the road the engine is quick and strong; in position every part is within easy reach, and no special knowledge or skill is needed to understand or operate it. Anyone capable of operating a single cylinder engine can easily and successfully

handle this one. A general description of the engine is given on the following pages.

The sizes we offer for 1904 are as follows:

For coal and wood, Standard boiler	{	5½" x 8" x 8"
		6" x 9" x 10"
		6½" x 10" x 10"
		7¼" x 11" x 12"

For straw or coal and wood, Universal boiler	{	6" x 9" x 10"
		6½" x 10" x 10"
		7¼" x 11" x 12"

A considerable range of power is easily obtained by these engines, and we request all would-be purchasers to be guided thereby in ordering. It is unwise and unnecessary to order too large an engine, as greater economy is obtained in carrying a load equivalent to the rated power of the engine.

Among the special features of the Russell Engines many have been patented. Those desiring further information are referred to the following dates of patents owned or used by us.

March 17, 1885; April 14, 1885; November 17, 1885; April 2, 1889; November 25, 1895; February 24, 1891; January 10, 1893; February 13, 1894; November, 1894; January 29, 1895; June 11, 1895; May 19, 1896; November 10, 1896; October 2, 1900; other patents pending.

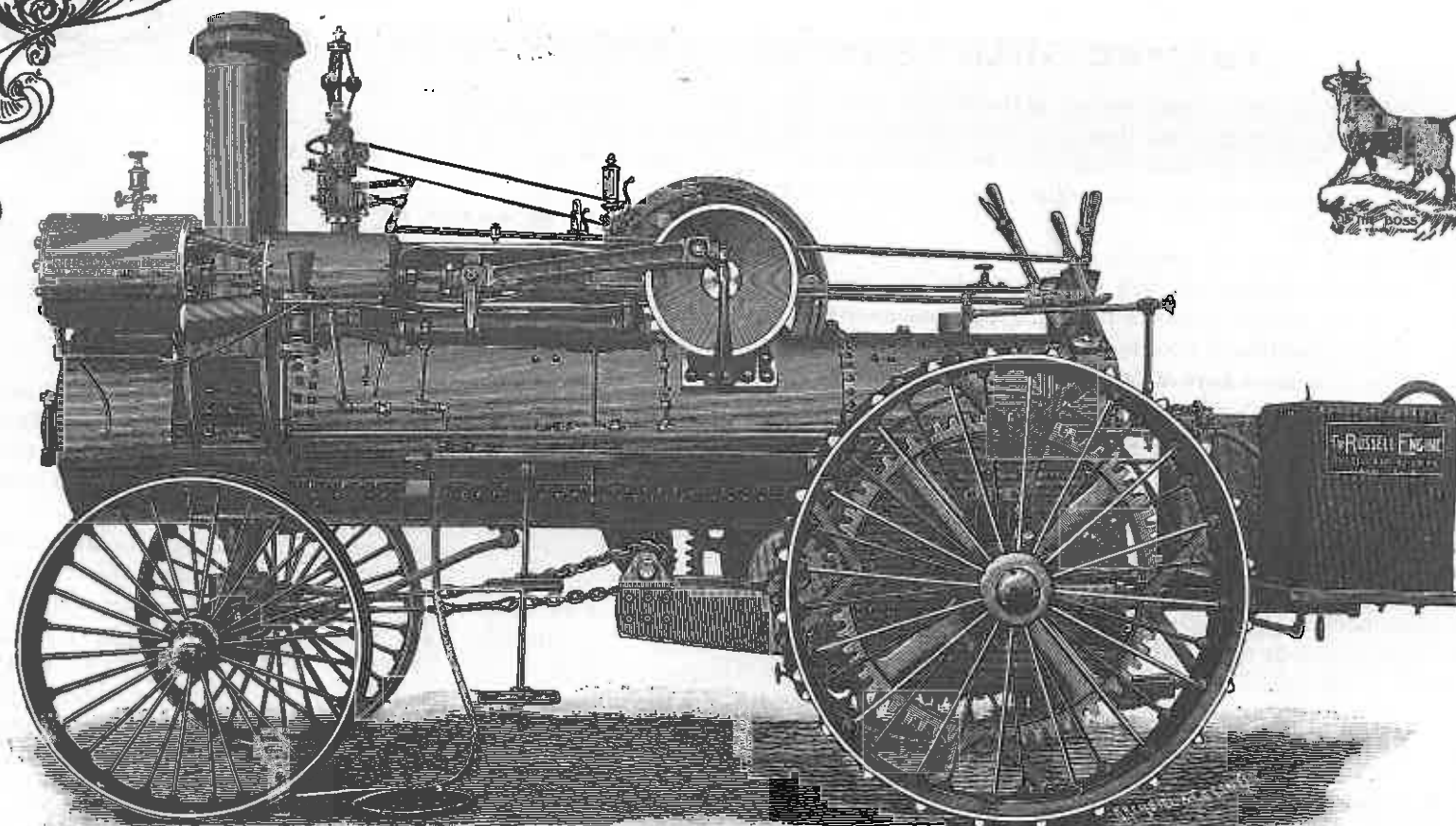
Engineers' Canopies and Cabs.

These are extra and are only furnished on order. Canopy, 6 feet wide by 12 feet long, \$50.00. Locomotive Style Cab, \$100.00.



Headlight \$8.50 Net.

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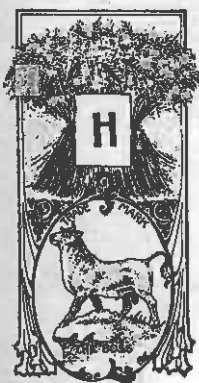


The "Russell" Compound Traction Engine.

Furnished in $5\frac{1}{2}$ " x 8" x 8", 6" x 9" x 10", $6\frac{1}{2}$ " x 10" x 10" and $7\frac{1}{4}$ " x 11" x 12" sizes. ($5\frac{1}{2}$ " x 8" x 8" size shown in cut.)

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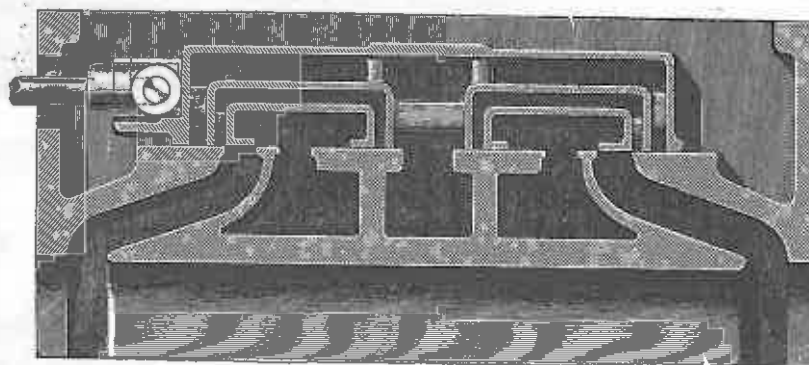
THE "RUSSELL" ENGINE.



HAVING already called attention to our Compound Engines, we take up in what follows here many details common to both simple and compound. The points of difference may not always be noted, but generally the description applies to both. The cylinder, steam chest, slides and half the crank box are cast in a single piece, and the cylinder is mounted at the smoke-box end of the boiler, so that the main boxes and crank shaft are near the center of the boiler. It is also lagged to reduce condensation and is oiled by a reliable Sight Feed Lubricator, which, if kept supplied with oil, will insure durability of cylinder and piston. The Piston Rings are self adjusting. The location of the crank shaft lessens the space to be covered in connecting the power with the ground wheel of the Traction Engine. The flywheel is in easy reach of the engineer and there is no trouble in throwing off and on the belt, as in the case of engines having pulley between boiler and rear drivewheel. The Crank Plate is a solid cast disc, carefully counter-balanced. It is forced upon the shaft by hydraulic pressure and firmly keyed in place.

Giddings' Patent Valve improved is used on all our Engines. Its advantages are, first, its double ports, by which a port opening just double the travel of the valve is given; one-eighth inch of travel giving two one-eighth inch openings, admitting a double

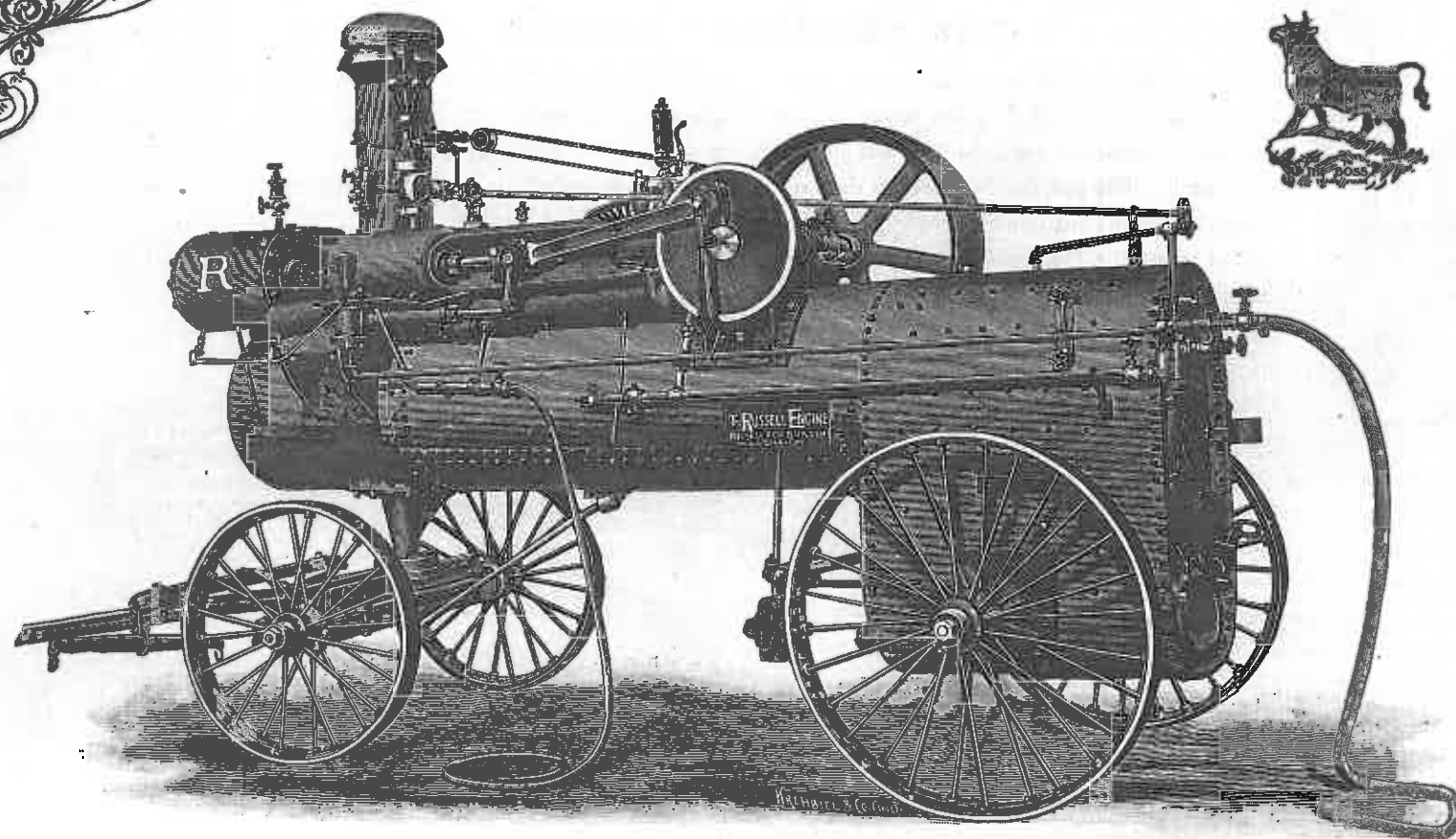
quantity of steam to the cylinder with a given travel. This gives, as a natural result, a very close approximation to boiler pressure, and maintains this pressure, with slight variation, up to the point of cut-off. This double ported feature also gives a large surplus of wearing surface to the face of the valve, which insures great durability. Second, it is so balanced that friction of valve on seat is reduced to minimum. No other valve offers so many or so important advantages as does this.



Our Patent Balanced Valve.

All working parts are carefully balanced, so that less bracing is required with this engine than with any other; the simple drawing of the lock is all that is ordinarily employed by users.

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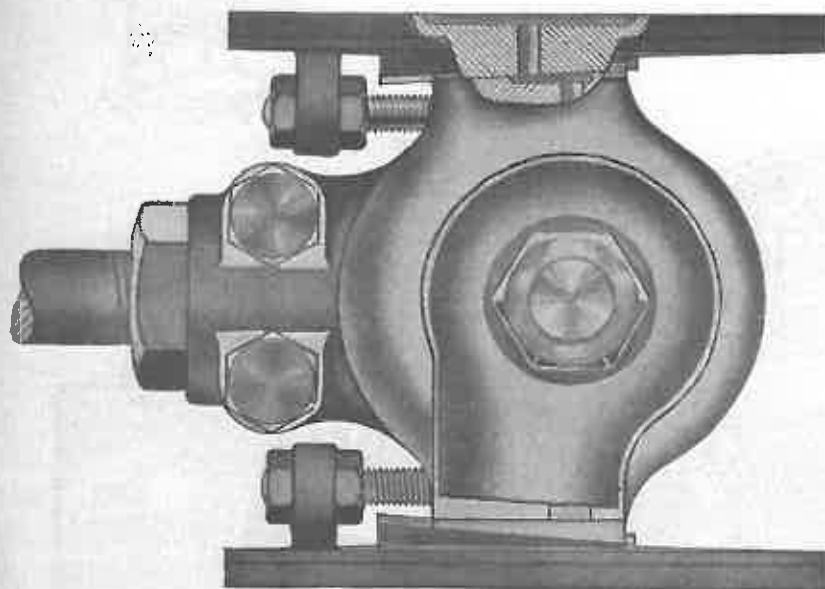
The "Russell" Compound Portable Engine.

Size, $5\frac{1}{2}$ " x 8" x 8". See pages 78 and 79.



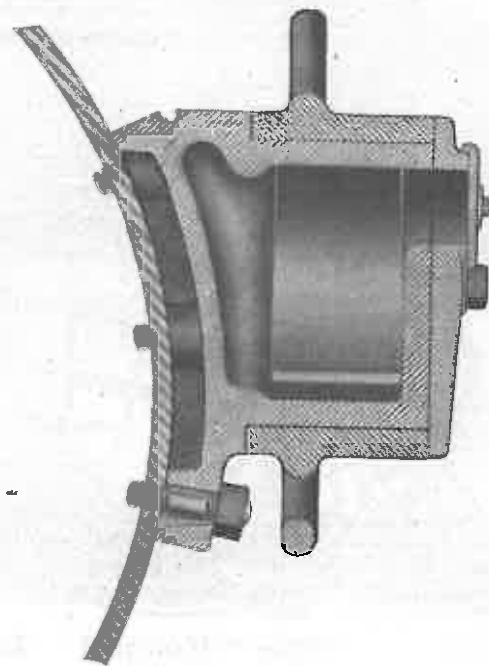
THE CROSS HEAD.

Is composed of one piece, with removable upper and lower shoes so arranged that by means of a bolt these can be adjusted to take up all the wear on the shoes or slides, and also providing for an easy renewal of the shoes when necessary. It carries the pump post for cross-head pump and is oiled through the cross-head pin. The piston rod screws into the cross head, and to make it doubly secure, we clamp the rod by means of two bolts, and also put jam nut on rod.



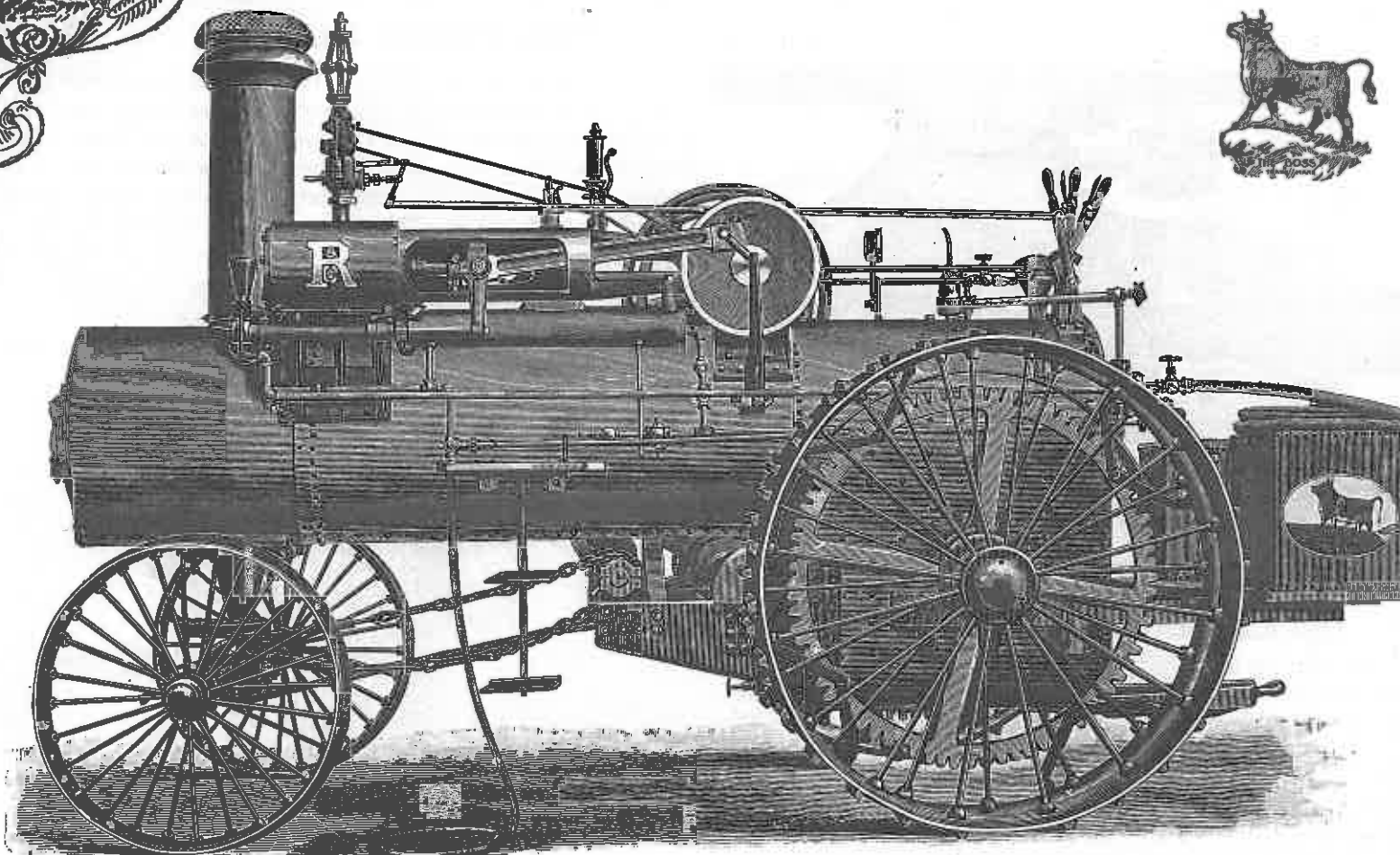
INTERMEDIATE TRUNNION.

To take care of the great strain that comes upon this trunnion from the traction mechanism of the modern, powerful engines, we have provided ample surface in the bracket, enlarged the diameter of the trunnion and arranged for certain and constant lubrication—an important point. The trunnion being hollow, is filled with waste and oil as shown in detail by cut displayed on this page. This being seen to, the trunnion will last the life time of the engine. We invite particular attention to this, because weakness and lack of provision for lubrication at this point on certain types of traction engines have caused users no end of annoyance and expense.



Intermediate Trunnion.

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The "Russell" Traction Engine—Single Cylinder.

Sizes 6" x 8" (8 H. P.), 7¼" x 10" (10 H. P.), 7¾" x 10" (13 H. P.), 8" x 12" (16 H. P.) and 9" x 13" (20 H. P.)
(Size shown in cut is 7¼" x 10".)



THE "RUSSELL" ENGINE—Continued.

THE CONNECTING ROD has babbitt-lined brass boxes at crank end with solid brass boxes at cross-head end which have ample provision for adjustment.

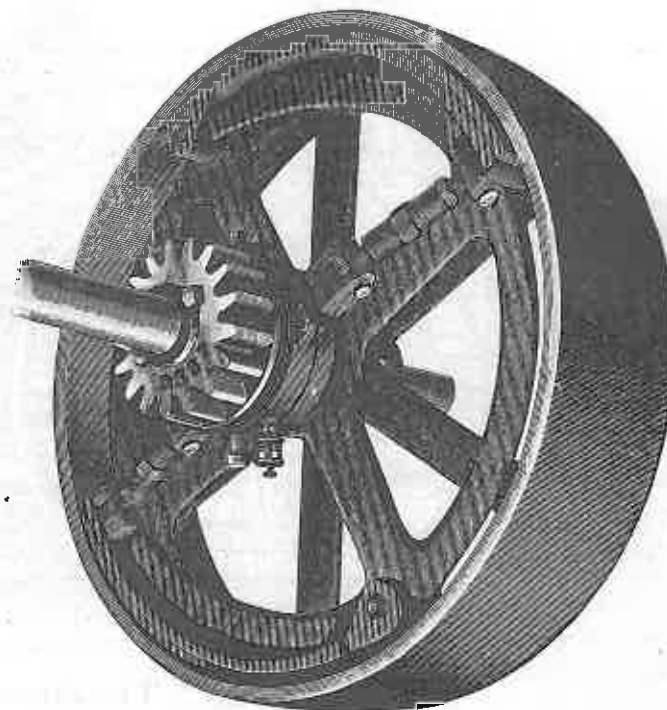
THE VALVE ROD AND PUMP PLUNGER are of steel, carefully fitted and polished. The piston rod and wrist



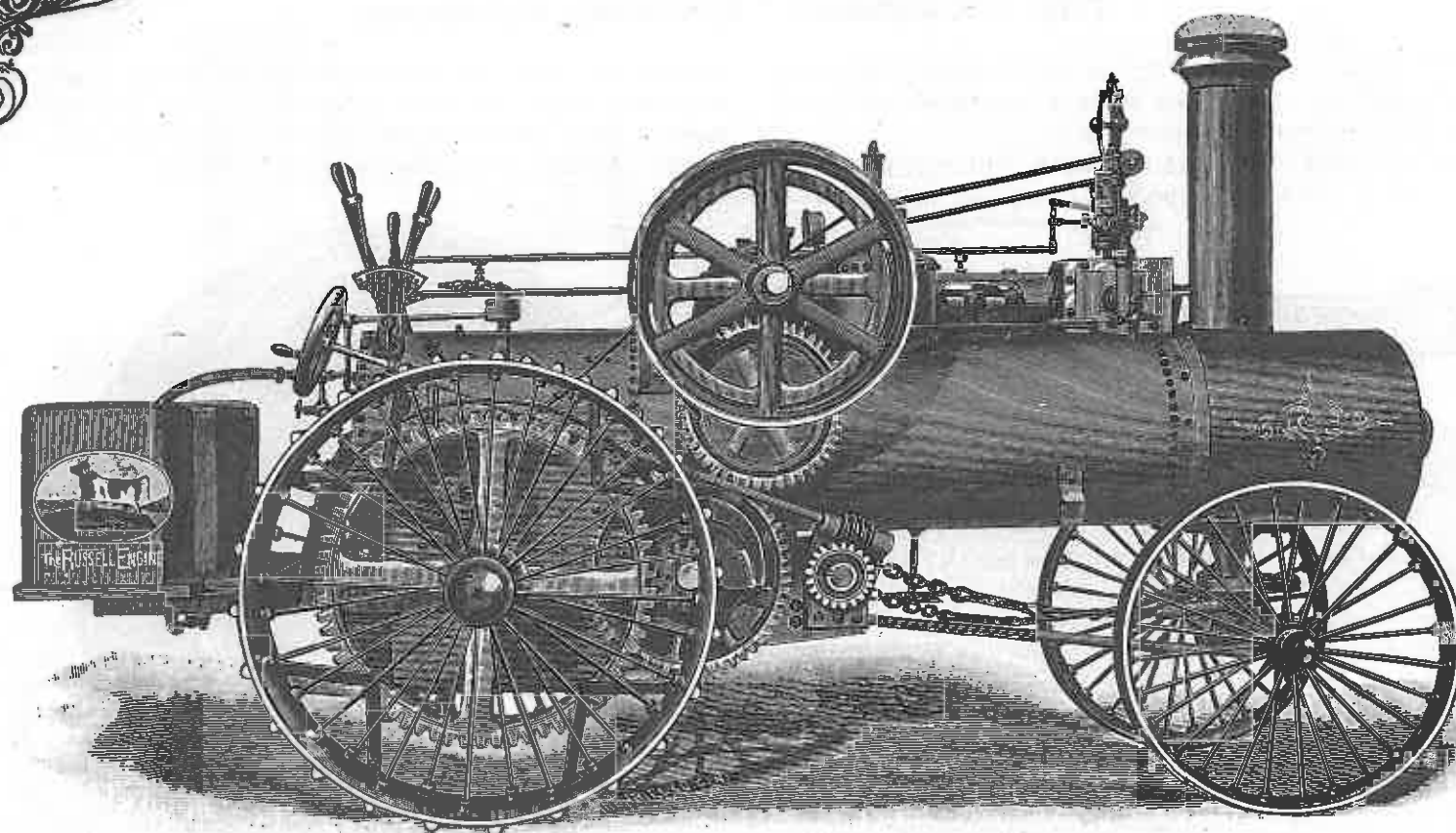
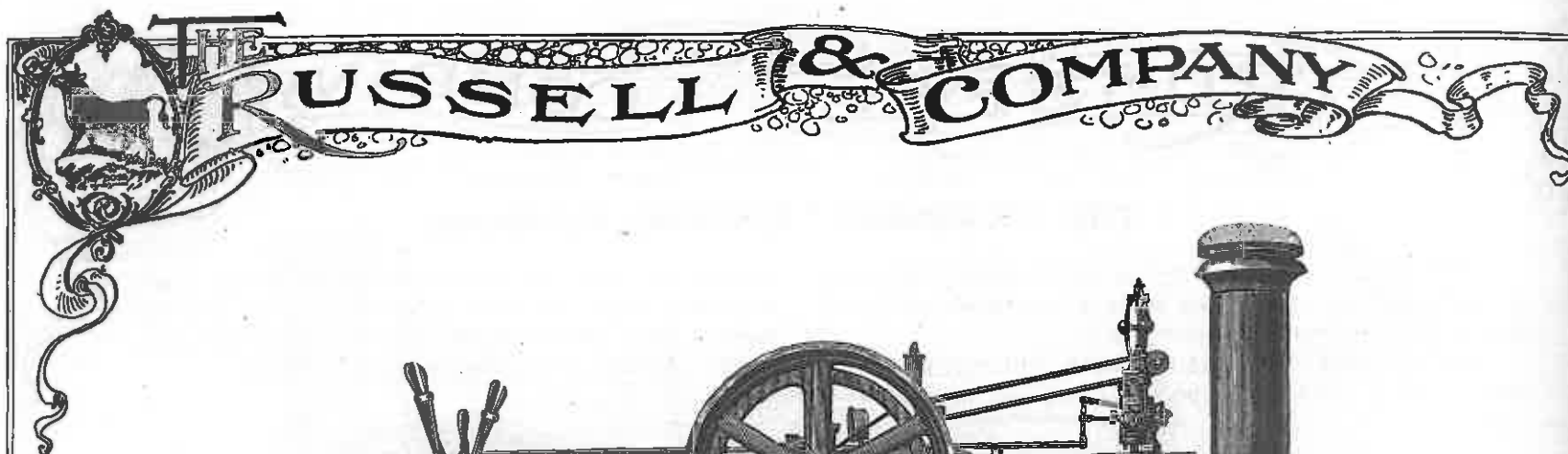
pin are of forged steel, turned and polished and the latter is oiled by means of our Centrifugal Oiler. THE MAIN SHAFTS are large with ample bearings.

GIDDING'S FRICTION CLUTCH.—This is emphatically the best traction engine Friction Clutch in use. It is absolutely reliable and can be instantly engaged and disengaged by lever from engineer's platform without danger to engine. There are other clutches which, on first glance, would seem to be similar, but close examination and trial will show that they are lacking essential points. A clutch which requires the stopping of the engine to engage or disengage it is utterly useless. A clutch which must be driven apart by a hammer and maul is worse than useless, yet some condemn all clutches because of such failures. A good clutch is an indispensable feature of a traction engine. It makes an engine strong to help itself where otherwise it would be weak. Where starting is particularly difficult the engine may be given high motion, then be instantly

thrown into gear, the momentum gained giving power at starting largely in excess of the ordinary power of the engine. This contact, though so effective is yet gradual, so that breakage of gearing has never occurred.



Friction Clutch and Band Wheel.

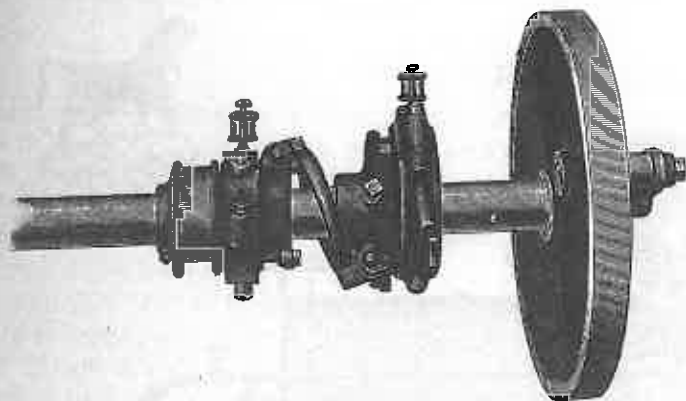


The "Russell" Traction Engine—Single Cylinder.

Sizes: 6" x 8" (8 H. P.), 7 $\frac{1}{4}$ " x 10" (10 H. P.), 7 $\frac{3}{4}$ " x 10" (13 H. P.), 8" x 12" (16 H. P.) and 9" x 13" (20 H. P.).
(Size shown in cut is 7 $\frac{3}{4}$ " x 10".)

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THE "RUSSELL" ENGINE—Continued.

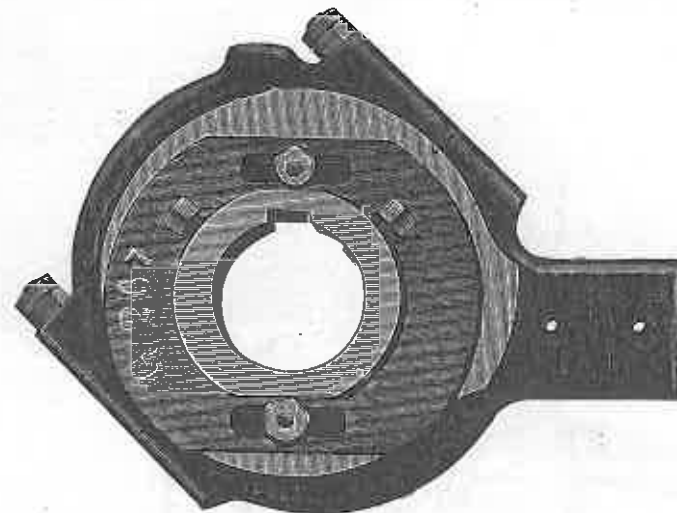


THE ADJUSTABLE REVERSE AND CUT-OFF.—The importance of admitting to the cylinder a quantity of steam



Russell Engines in Siberia.

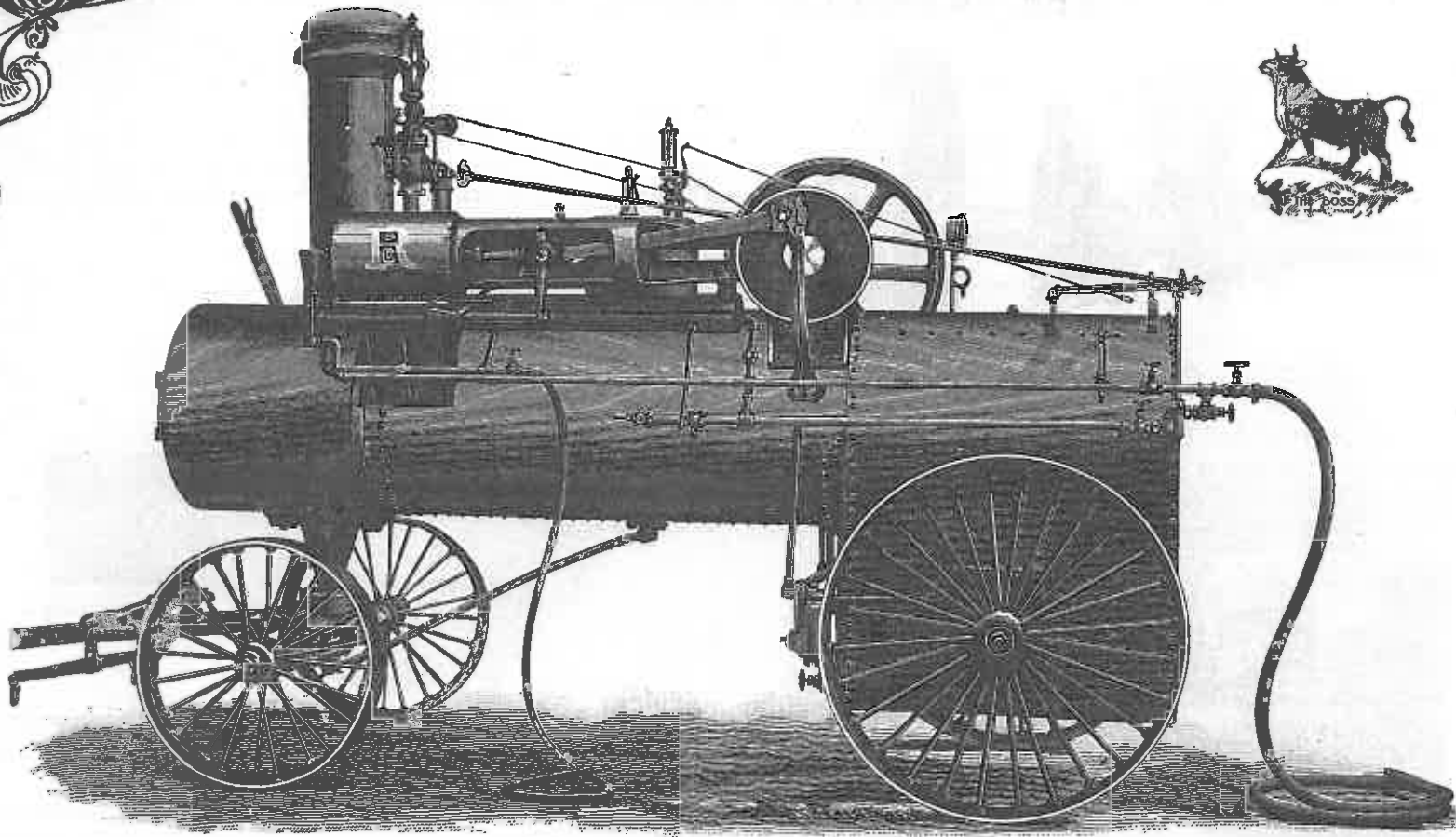
sufficient to do the work required, and no more, is evident to all. Yet with the ordinary fixed cut-off—usually a three-quarters stroke—the port is held open as long when the engine is running empty as when doing the hardest work. The throttling governor but imperfectly corrects this by wire-drawing the steam. With our device anyone of the several



adjustments can be had, as $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$, either for forward or backward motion, the engineer setting the lever to the proper notch.

SLIDING ECCENTRIC.—In our device, which is protected by patents, the eccentric is made to slide across the shaft, giving a range of admission or cut-off from one-quarter to three-quarters stroke in both directions. This is, in the case of Traction

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The "Russell" Portable Engine—Single Cylinder.

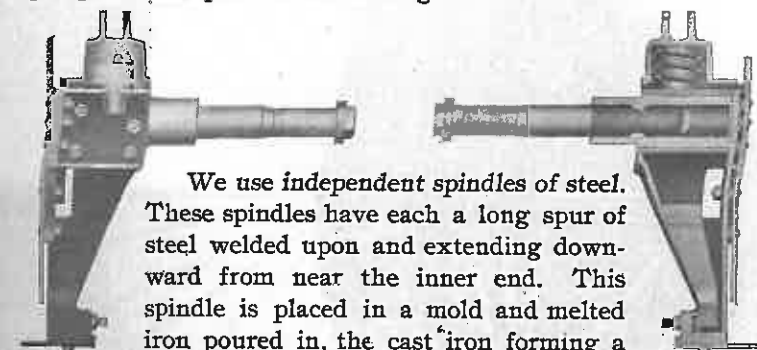
Sizes: 5" x 7" (6 H. P.), 6" x 8" (8 H. P.). See page 79.

THE RUSSELL & COMPANY

THE "RUSSELL" ENGINE—Continued.

Engines, operated by a bell crank provided with ample provision for taking up lost motion. In other than Traction Engines this adjustment is made by moving the eccentric to correspond with graduations on the hub-plate. This and the edge of eccentric are plainly marked for $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$ cut-off, both forward and backward.

ADJUSTABLE SPRING MOUNTING.—This is peculiar to our engine, and is protected by patents. The main weight being carried on the rear or driving wheels, we confine the springs to this part of the road gear.



We use independent spindles of steel. These spindles have each a long spur of steel welded upon and extending downward from near the inner end. This spindle is placed in a mold and melted iron poured in, the cast iron forming a solid frame or casing, which firmly grasps both spindle and spur, giving great rigidity and enabling us to hold it in any desired position.

To carry the spindle, or rather to contain it, we bolt to the sides of the firebox, brackets or guide frames. These act as guides in controlling the movement upon the springs. Wearing plates with provision for taking up and adjusting are placed upon back and sides of spindle casting.

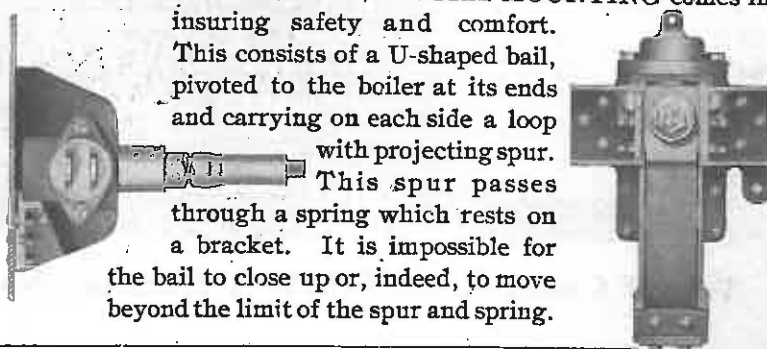
The lower part of the bracket carries a sleeve, through

which the spur passes. About this sleeve and surrounding the spur we place a heavy spiral spring; through this spring, held in place by a keeper and nut, the weight of the engine is carried to the wheels. By adjusting the nut



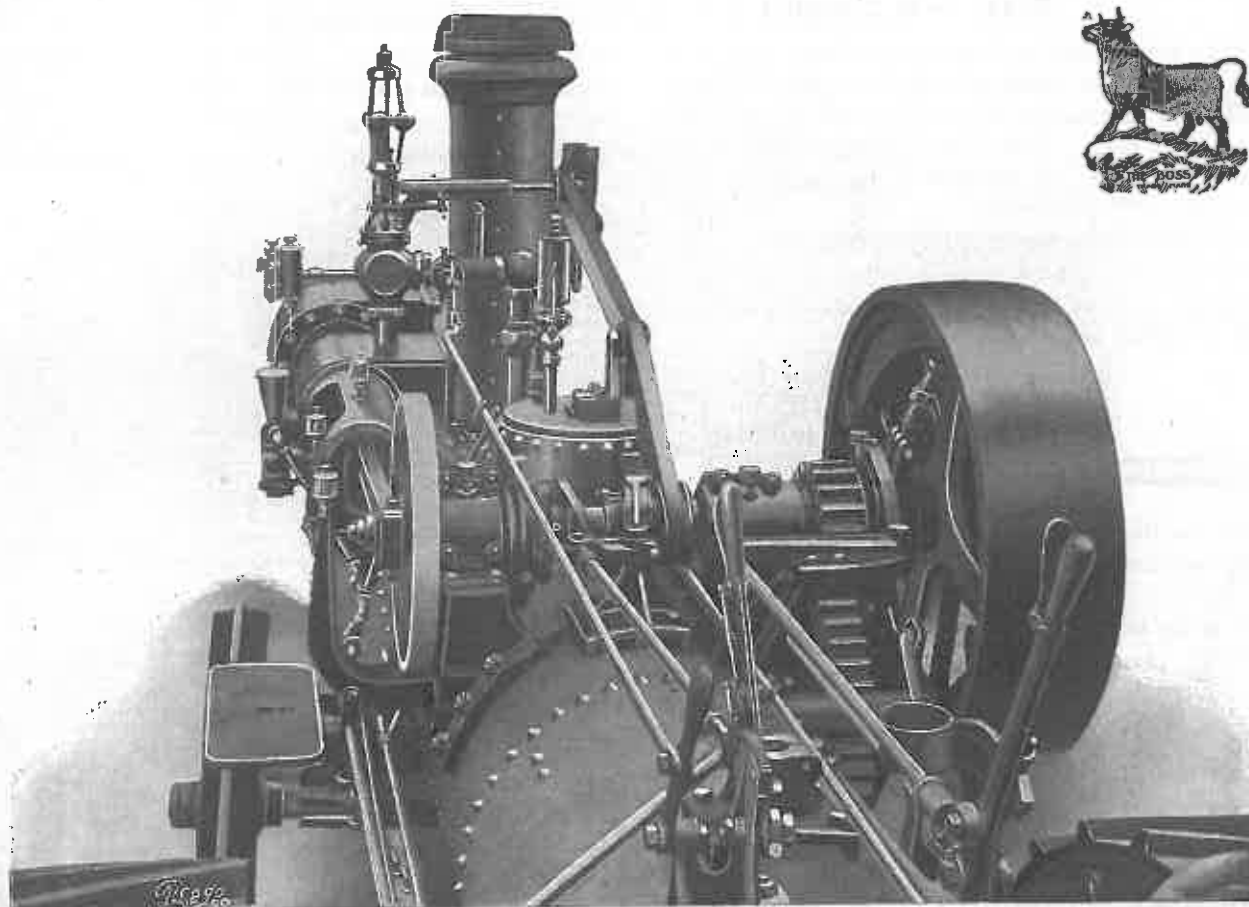
A Russell 6 1/2 x 10 Engine after an Overland Trip of 243 Miles over Mountain Roads. Time, 11 1/2 Days. Owned by H. C. Levens, Burns, Oregon.

any desired tension is obtained. These springs, while relieving the jar to the engine, are not enough for the comfort of the operator. Here our PATENT PLATFORM MOUNTING comes in,



insuring safety and comfort. This consists of a U-shaped bail, pivoted to the boiler at its ends and carrying on each side a loop with projecting spur. This spur passes through a spring which rests on a bracket. It is impossible for the bail to close up or, indeed, to move beyond the limit of the spur and spring.

THE RUSSELL & COMPANY

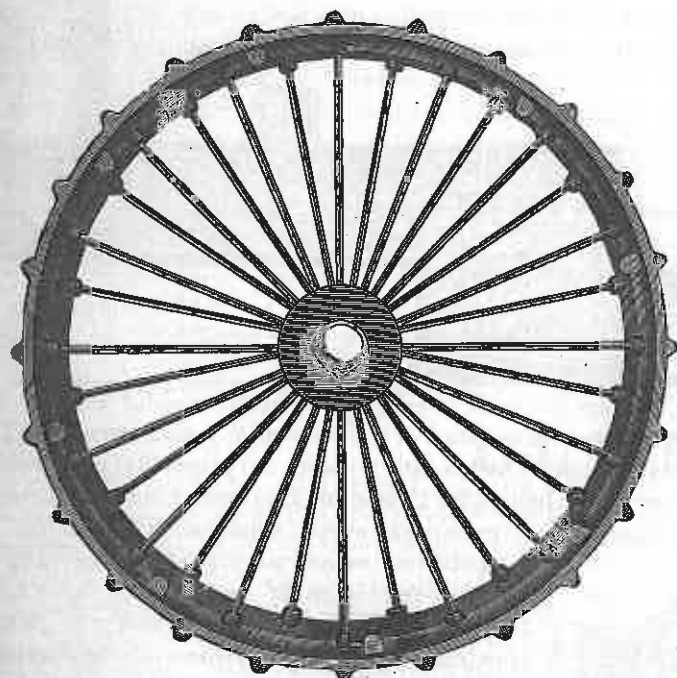


Top of Compound Traction Engine—Showing Convenience of Operating Parts.

THE RUSSELL & COMPANY

THE "RUSSELL" ENGINE—Continued.

We ask particular attention to the ground wheels of these engines. We are among the first of the thresher manufacturers to engage in the engine business, and in our long experience have thoroughly tried the three kinds of wheels; viz: The wood, the wrought iron and the combined cast and wrought, and as a result we assert emphatically that no built up wheel, no matter how made,



Ground Wheel.

be it riveted, bolted or welded, can compare in real merit with the wheels we furnish. Those who have been the loudest in their claims for other wheels to-day build an imitation of our wheel. We are so confident of its entire adaptation to the work that we do not hesitate to offer to replace without charge, except freight, any wheel proving defective in two seasons' use.

There are positively no repairs to be made to our wheel. It may wear out, but it cannot give out. There is no wrought, built up wheel but what will sooner or later show loose joints, rivets failing or threads loosening.

Our wheels are practically a single piece, and have such surplus strength that with one-half the spokes removed the wheels could still carry their load.

The standard rear wheel is 58" in diameter, with 12", 14", 16" or 20" face according to size of engine. On our universal (straw burner) boiler we use 66" wheel to meet the increased depth of firebox.

The BRAKE MECHANISM.—By this the pressure of the operator's foot is conveyed through a face wheel and shoe to the moving parts, momentum being arrested almost instantly. A suitable spring holds the shoe from the wheel when not needed. This is also patented.



The Boss Lifting Jack.

THE RUSSELL & COMPANY

THE "RUSSELL" ENGINE—Continued.

PARTS FOR OPERATING engine (throttle, brake, reverse and clutch levers, means for operating the blower, steam chest cylinder cocks, valve for priming pump and service blow-off) are all within easy reach from the foot board.

SPRING DRAW BAR.—We use a spring draw bar to relieve the strain in starting.

TRIMMINGS.—In the matter of trimmings our engines are thoroughly equipped, suitable compression grease cups being used wherever necessary.

Safety valves and steam gauges are warranted for one year, and will be found most reliable. We will on demand replace promptly for the first season any steam gauge not registering correctly, and urge upon the parties to carefully watch this important adjunct to their engine and to let no time pass, should they have reason to suspect that it is not showing correctly, before they report the matter, as engines are frequently blamed for lack of power when it is a weak gauge that is at fault.

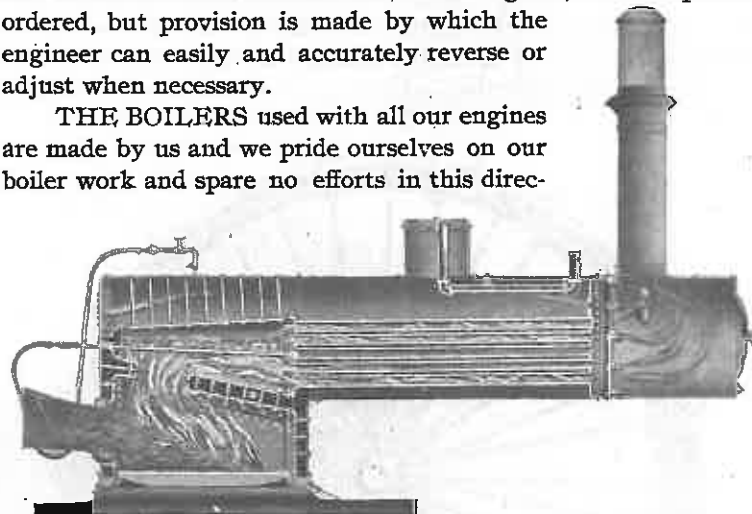
We furnish a reliable injector besides the regular cross-head pump, making the best possible combination for supplying the boiler. We use the cross-head pump, finding it altogether more reliable for traction and farm engines, as well as less liable to breakage than any independent pump.

Provision is made for starting and operating either pump or injector from engineer's platform.

OUR PORTABLE ENGINES.—The bed of the engine, valve and the fittings, so far as same are used, are all identical with those of the traction. Neither platform nor water tank will be furnished, but a driver's seat, not included with the traction, will be placed

upon each Portable Engine. The reverse heretofore described is not furnished with Portable or Skid Engines, unless specially ordered, but provision is made by which the engineer can easily and accurately reverse or adjust when necessary.

THE BOILERS used with all our engines are made by us and we pride ourselves on our boiler work and spare no efforts in this direc-



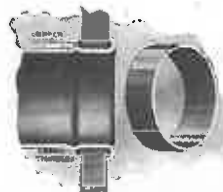
tion. They are made of carefully selected stock of the best open hearth homogeneous steel of 55,000 pound tensile strength. They are tested under a hydrostatic pressure of 150 pounds (225 pounds in the case of the boilers for Compound Engines), a much more severe test than an equal pressure of steam, water being non-elastic. All

longitudinal seams are double riveted and flat surfaces reinforced by angle irons, to which are bolted braces made of the best refined iron. We also construct them with a cast iron smoke box extension bolted firmly and securely to the barrel of the boiler. This is much superior to the boiler plate extension as there is no liability of rusting or burning out.



THE RUSSELL & COMPANY

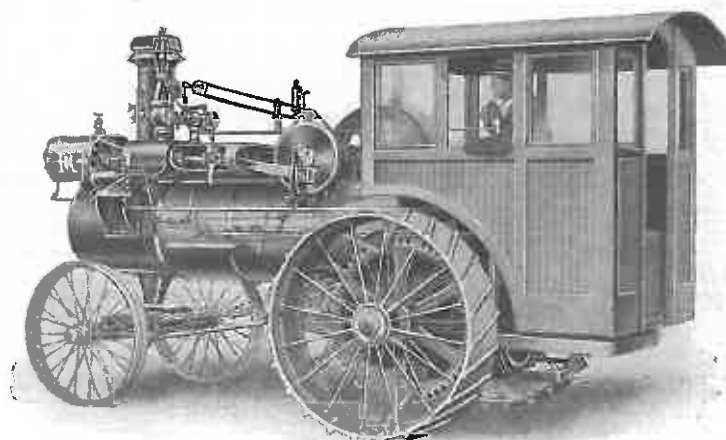
THE "RUSSELL" ENGINE—Continued.



Flue and Copper
Ferrules.

We construct all our boilers with sloping crown sheets, securing an abundance of water over same when descending hills. A reliable safety plug is inserted in this sheet and another packed with supplies. The flue sheet is one-half inch thick and all the flues are put in with copper ferrules.

OUR LOCOMOTIVE CAB.— Having had numerous requests to furnish something more substantial in the way of a cab, and offering a better protection to the engineer than that afforded by our roof canopy, we take pride in calling attention to our Locomotive Cab. It is built in the most substantial manner of thoroughly seasoned lumber, the frame mortised and tenoned and bolted together. The sides and front are of matched lumber and the openings in front and side fitted with sash and windows and all finished in the most tasteful manner. It is made to cover all parts operated by the engineer when on the road and will be found the one thing necessary to make a complete Road Engine.



Our Locomotive Cab.

GUARANTEE.



We guarantee every engine and boiler we build. Both are thoroughly tested, an indicator card or record being kept of every engine leaving our works. This card is taken under a load exceeding by twenty-five per cent. the rated power of the engine under test. Further, every engine is given a road and hill-climbing test.

We are responsible for the adjustment and operation of every engine we build and we caution customers to let valves entirely alone. If it is desired to adjust to suit individual notions, we ask that this be delayed until the working of the engine as it leaves our hands has demonstrated its entire fitness to do the work it is to perform; after that any change may be made at owner's risk.

THE RUSSELL & COMPANY.

Tandem Compound Non-Condensing Traction Engines.

Tandem Compound Non-Condensing Traction Engines.

MANUFACTURED BY

**The Russell & Company,
Massillon, Ohio, U. S. A.**

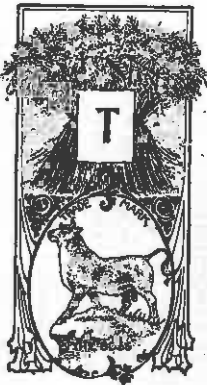
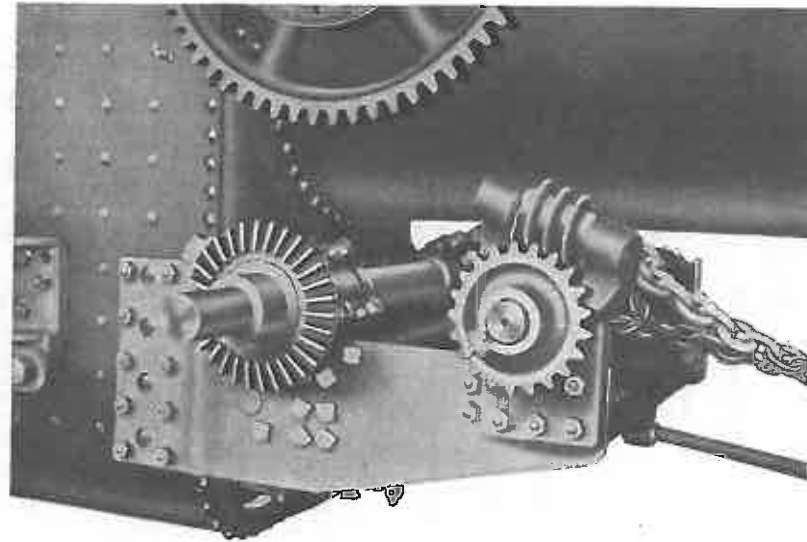
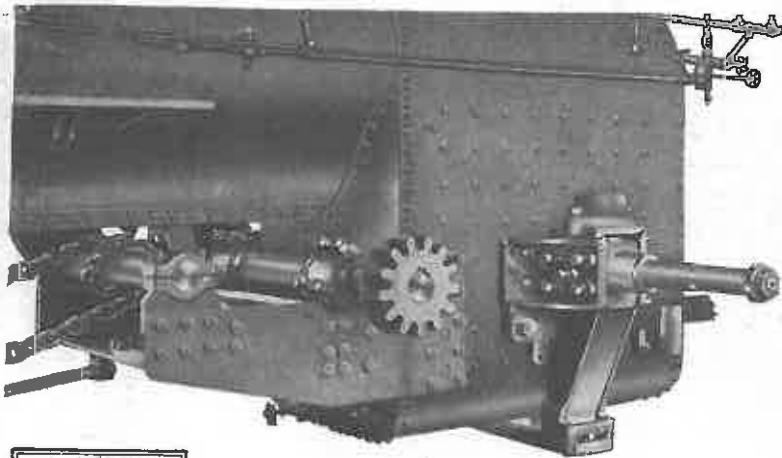
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Revised 12-1-08

*These are tabulated results of actual performance of engines on ordinary level roads, and not merely theoretical examples.

THE RUSSELL & COMPANY

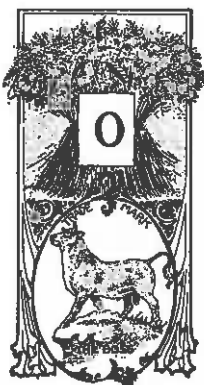
"CROSS-SHAFT BRACKETS AND AXLES."



THE above cuts illustrate the substantial manner in which we carry the cross shaft of our engines. Instead of the old cast cross-shaft bracket, we provide steel-plate horns bolted to the sides of the boiler and having strong braces and babbitted bearings, to support this shaft, thus relieving the strain on the throat sheet and making breakages at this important point almost impossible. No other traction engine has this great improvement. On our compound engines, which work under steam pressure of 150 pounds, we use special heavy gearing and axles, the axles being tied underneath the boiler, as shown in cut on this page.

THE RUSSELL & COMPANY

STRAW-BURNING ENGINES.



OWING to the general demand for Compound Straw Burners, we carry but a small stock of Single Cylinder Engines of that pattern. We shall carry regularly three sizes of Straw-Burning Compound Engines, 6" x 9" x 10", 6½" x 10" x 10" and 7¼" x 11" x 12" and can furnish 7¼" x 10", 7¾" x 10", 8" x 12" and 9" x 13" Single Cylinder. They can be furnished as Hand or Power-Steering Traction or as Portables. The engine in respect to valve and valve gear, cylinder, steam chest, main shaft, governor, pump, injector, lubricator and fittings, is identical with those already described. The boiler is of the improved "Universal" pattern described on page 31. It allows of burning coal or wood; hence we supply both straw and wood or coal grates with each Straw Burner. Adding to the economy of this boiler is our jacketing, reducing both radiation and condensation. These engines will not be furnished without jacketing except on special order.

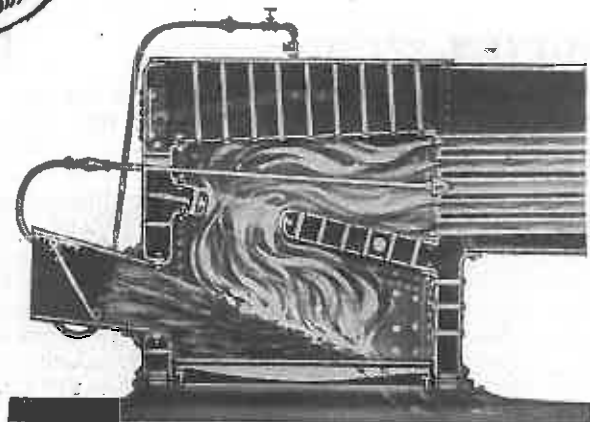
The feeding of straw is arranged for by the use of an iron funnel and door, hinged at the top, falling shut of its own weight. Openings are provided at both front and rear of the ash pit, enabling the draft to be taken from either direction. Convenient appliances allow of ready adjustment of doors from footboard. There is tank provision for a small supply of water with each engine. Suitable and sufficient openings are provided to give all necessary access to interior of boiler. Openings at each end of the boiler afford every facility for cleaning flues. The steering wheel of the engine is on the right. The ground wheel of the Traction as regularly furnished are 66" in diameter and 20" face—24" on 7¼" x 11" x 12" and 9" x 13". Wider faced wheels are charged extra for.

The trimmings are the same as those furnished with the Standard Traction Engine previously described. Either the straight or bell top smoke stack is used on this boiler, with a special hood or spark catcher for use when burning straw. Every Straw-Burning outfit has a straw-feeding fork with iron handle.



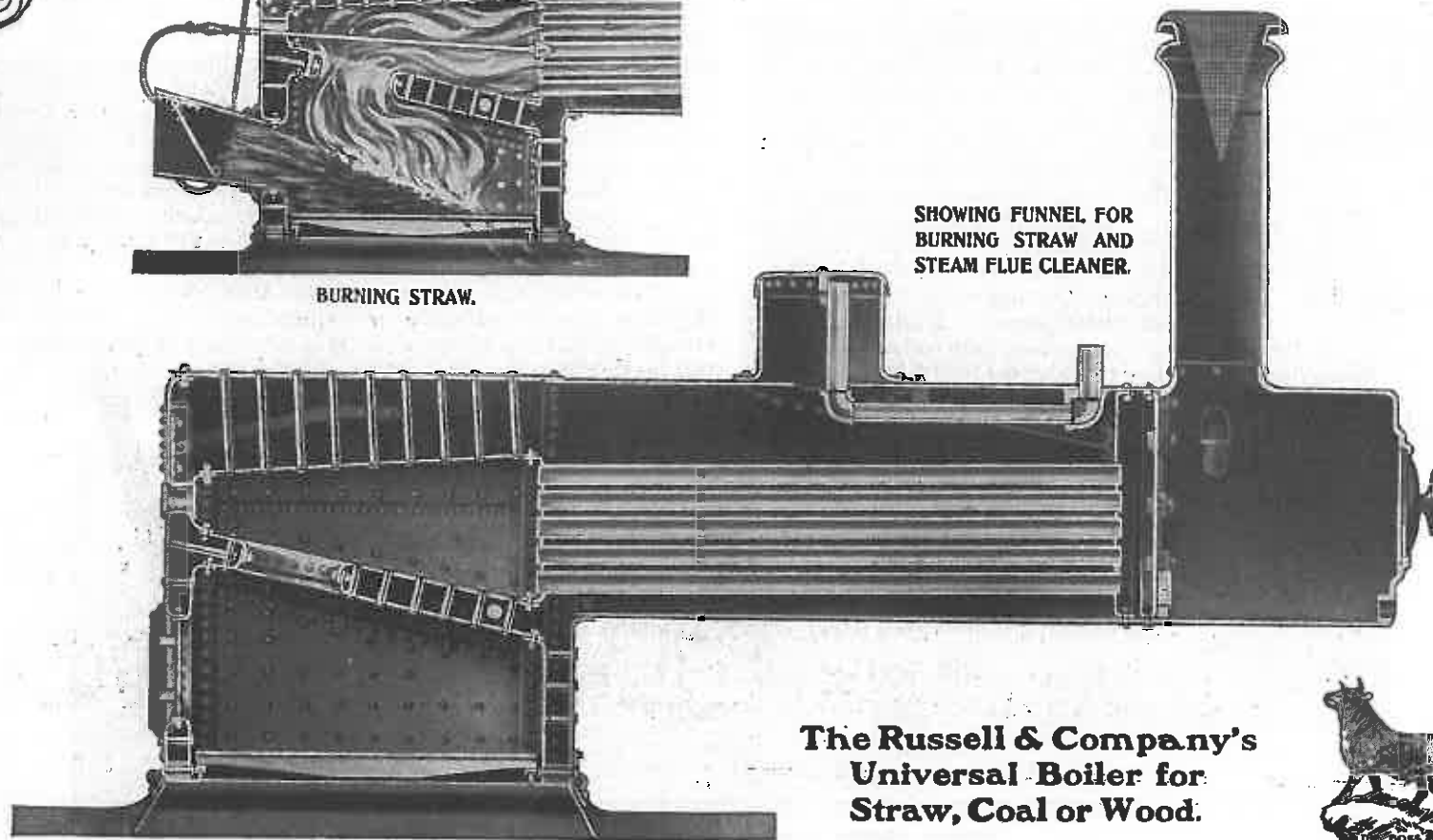
Complete "Russell" Outfit owned by R. Conwell, Troy, Idaho.

THE RUSSELL & COMPANY



BURNING STRAW.

SHOWING FUNNEL FOR
BURNING STRAW AND
STEAM FLUE CLEANER.



The Russell & Company's
Universal Boiler for
Straw, Coal or Wood.



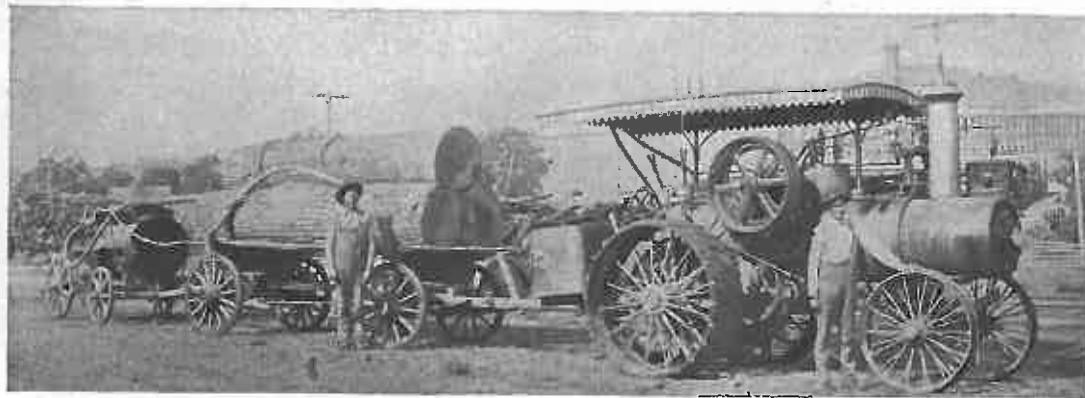
THE RUSSELL & COMPANY

THE "UNIVERSAL" BOILER.

This is a novelty in Farm Engine practice. A boiler which, while primarily designed for straw burning, is emphatically at the head of all boilers, whether straw or other fuel is to be burned. It gives more perfect combustion of the fuel used than is possible with other types and has increased surface exposed to the resulting heat.

Its design is shown in the accompanying cut. The lower or firebox chamber is of considerably less height than in the ordinary type but longer, bringing its crown sheet near the burning fuel, getting therefrom all the heat it can absorb. Above this sheet is water to the depth of about four inches; above this the bottom plate of the combustion chamber.

perfect combustion, and may at times have to be closed. The absence of direct exposure of main tubes gives the greatest freedom from leakage. It is impossible, when starting a fire in a cold boiler, to avoid black smoke, but even its volume is much reduced, and when once hot, with proper handling a freedom from this evidence of waste is secured that is indicative of the economy claimed for this boiler. As compared with the ordinary coal burner, a saving of one-third is claimed with coal for fuel. There is also a saving of time in making steam of fully an equal percentage. The draft in this boiler is better than in the ordinary locomotive forms, as it has dampers at each end of fire-box for ad-



Hauling Logs in Georgia.

Passage to the combustion chamber is through an opening of an area equal to the area of the tubes leading to the stack. This upper or combustion chamber is large enough to secure a thorough commingling of the gases, with the result of intense combustion. Water surrounds the six walls of this chamber, which is so clean that the bottom plate seems to afford heating surface almost as valuable as the sides and top. Air is admitted into this combustion chamber through a wicket above the fire-door. This wicket should be kept open just enough to supply the amount of air necessary for

mission of air. In burning straw the air is preferably admitted at forward opening under specially designed grate bar, but either draft may be used. Convenient handholes afford ready access to the water spaces. In use we find a complete freedom from sediment in the space around the fire-box, accounted for by the very rapid circulation.

These boilers will be jacketed for straw burning and tested at 225 pounds water pressure, designed to regularly carry 150 pounds of steam pressure. Their equipment throughout will be complete and reliable.

THE RUSSELL & COMPANY

STEEL WATER TANKS.

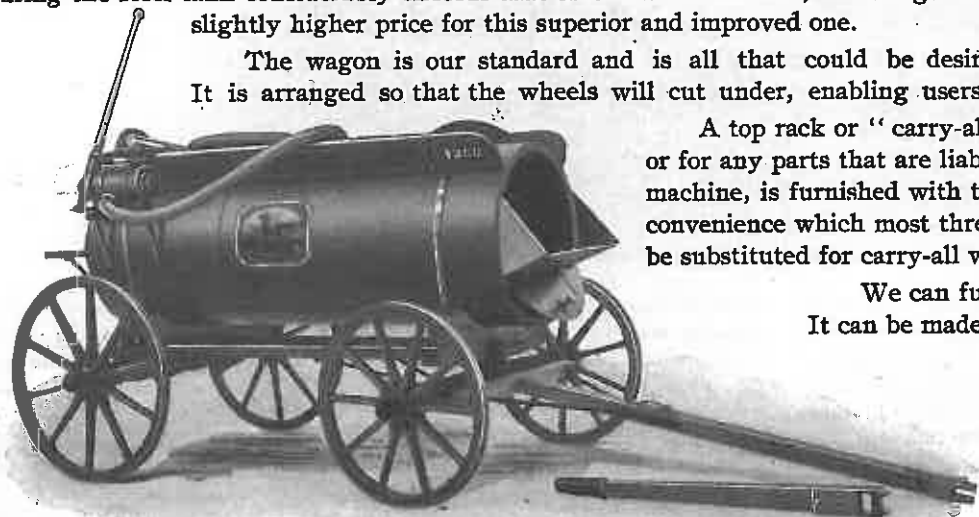
The increased demand for our new steel tank proves it has been found far superior to the ordinary wooden tank, and will outlast any that is made. It is really a complete tender, as it combines a fuel box, a tool box, carry-all, etc. We build them of No. 12 sheet steel, with heavy No. 8 steel heads, all of which are substantially riveted. The whole interior is given a coat of lead paint, and outside they are highly finished and handsomely painted.

A partition through the center prevents the swishing of the water when ascending or descending hills.

We provide an extension or combination tongue with each of these tanks. The shorter, attached to the tank permanently, is used for a coupling pole when the tank is attached to and drawn behind the engine. When it is necessary to use horses, as when going for water, the long tongue with double and singletrees is slipped into the socket on the other, and the coupling pin holds all in place. The tank is then ready for the horses, and this change can be made in a moment.

They will be furnished in two sizes, 5 and 10 barrel. While the cost of manufacturing the steel tank considerably exceeds that of the wooden tanks, we charge but a slightly higher price for this superior and improved one.

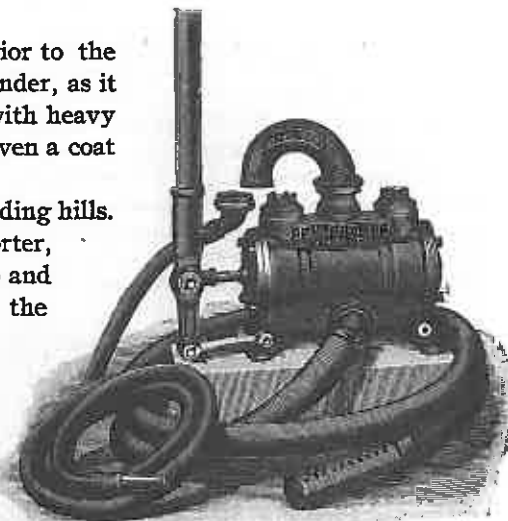
The wagon is our standard and is all that could be desired. It is arranged so that the wheels will cut under, enabling users to make a short turn.



A top rack or "carry-all," designed to form a safe receptacle for the belt or for any parts that are liable to be lost if they should be thrown into the machine, is furnished with this tank. This makes it a sort of trap wagon—a convenience which most threshermen will appreciate. A STRAW RACK can be substituted for carry-all when straw is used as a fuel.

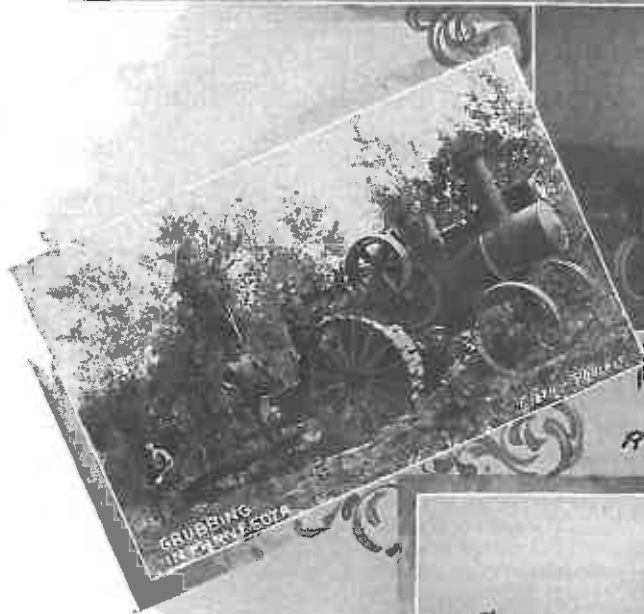
We can furnish the tank alone without trucks when desired. It can be made to fit on any common wagon.

The pump brackets will allow of placing on any make of tank pump. As regularly furnished, they are arranged for the Special Tank Pump handled by us. Tank pumps and hose will be furnished on order at an additional cost.

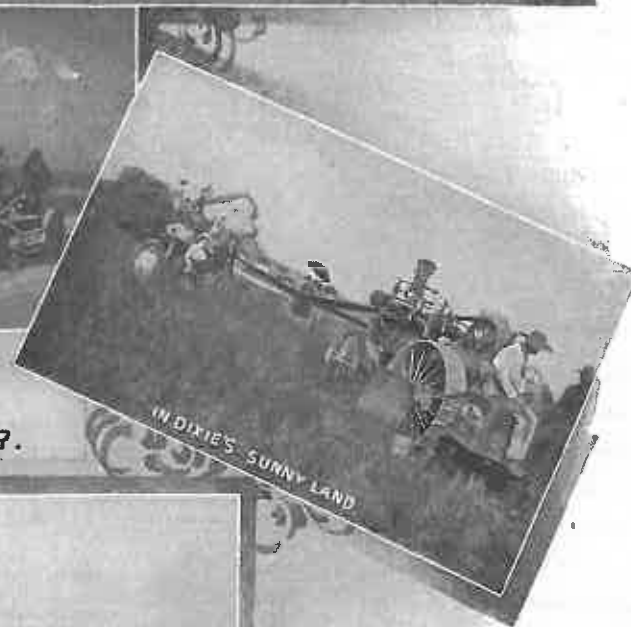


"ON THE RESERVATION—Devils Lake Agency, N. Dakota."

Government Indian Outfit from THE RUSSELL & CO., at Devils Lake Agency.



THE
RUSSELL ENGINE
PULLING A
ROAD GRADER.



IN DIXIE'S SUNNY LAND



Plowing in North Dakota.

4647 TABULATED RESULTS OF FARM ENGINE ECONOMY TESTS.

	TEST No. 50.	TEST No. 51.	TEST No. 52.	TEST No. 53.	TEST No. 54.	TEST No. 55.
Date	May 26th, 1896.	June 9th, 1896.	June 13th, 1896.	June 18th, 1896.	June 26th, 1896.	Sept. 14th, 1896.
Kind of Boiler	Univ. Jacketed.	Loco. not Jacketed	Univ. not Jacketed.	Univ. Jacketed.	Loco. Jacketed.	Loco. not Jacketed.
Size and Number of Boiler	28½"x6', No. 8663	28½"x6', No. 8645	28½"x6', No. 8663	28½"x6', No. 8663	28½"x6', No. 8645	28½"x6', No. 7877
Kind of Engine	Tand. Com. Trac.	Tand. Com. Trac.	Tand. Com. Trac.	Tand. Com. Trac.	Tand. Com. Trac.	Simple Trac.
Size and Number of Engine	6½"x10"x10", No. 8627	6½"x10"x10", No. 8599	6½"x10"x10", No. 8627	6½"x10"x10", No. 8627	6½"x10"x10", No. 8599	7½"x10", No. 8216
Time of Test	12:30 to 5:30 p. m.	1 to 6 p. m.	6:30 to 11:30 a. m.	6:30 to 11:30 a. m.	12:30 to 5:30 p. m.	1 to 6 p. m.
Speed in Revolutions per minute.	225	225	225	225	225	225
Average Steam Pres. above atmos. in boiler.	148. lb.	145. lb.	145. lb.	145. lb.	145. lb.	112. lb.
“ “ “ “ “ at throttle	143. lb.	139. lb.	137. lb.	139. lb.	140. lb.	100. lb.
“ “ “ “ “ in receiver	41. lb.	39. lb.	44. lb.	37. lb.	37. lb.	
Brake Load in H. P.—Net*	29.1	29.2	26.6	24.7	28.3	25.3
Average I. H. P.—H. P. Cylinder	19.93	19.72	17.1	17.5	19.65	28.19
“ “ —I. P. “	12.76	12.98	13.	10.7	12.23	
“ “ —Both	32.6	32.7	30.16	28.2	31.87	
Fuel—Kind of Coal	West Va. Run of Mine.	West Va. Run of Mine.	West Va. Run of Mine.	Best Mass. Lump.	Best Mass. Lump.	West Va. Run of Mine.
Total Amount Burned	487. lb.	586.2 lb.	425. lb.	390. lb.	506. lb.	723. lb.
Amount of Ashes and Clinkers	100. lb.	95. lb.	64. lb.	44. lb.	71. lb.	86. lb.
Total Amount of Combustible	387. lb.	491.2 lb.	361. lb.	346. lb.	435. lb.	637. lb.
Amount of Moisture in Coal	70. lb.	87.9 lb.	64.75 lb.	58.5 lb.	75.9 lb.	108.45 lb.
Total Amount of Combustible, Pure & Dry	297. lb.	403.3 lb.	296.25 lb.	287.5 lb.	359.1 lb.	528.55 lb.
Water—Total Weighed to Boiler	3358. lb.	3458. lb.	3293. lb.	3200. lb.	3230. lb.	3983. lb.
Amount Consumed per H. P. per hour ..	20.9 lb.	21.15 lb.	21.83 lb.	22.62 lb.	20.2 lb.	23.22 lb.
“ Evaporated per lb. of Combustible. ...	9.1 lb.	7. lb.	9.1 lb.	9.2 lb.	7.4 lb.	6.23 lb.
“ “ “ “ Pure & Dry	11.3 lb.	8.58 lb.	11.16 lb.	11.48 lb.	9. lb.	7.5 lb.
Equivalent “ from and at 212° Fahr. .	12.72 lb.	9.34 lb.	12. lb.	12.48 lb.	9.74 lb.	8.3 lb.
Temperature—Feed Water in Tank.	80° F.	80° F.	75° F.	75° F.	83° F.	84° F.
“ —Water Entering Boiler	180° F.	174° F.	178° F.	177° F.	179° F.	148° F.
“ —Test Room	74° F.	75° F.	67° F.	70° F.	82° F.	82° F.

*This is not the maximum Brake Load that these engines are capable of developing, but simply the average load recorded in this particular test.

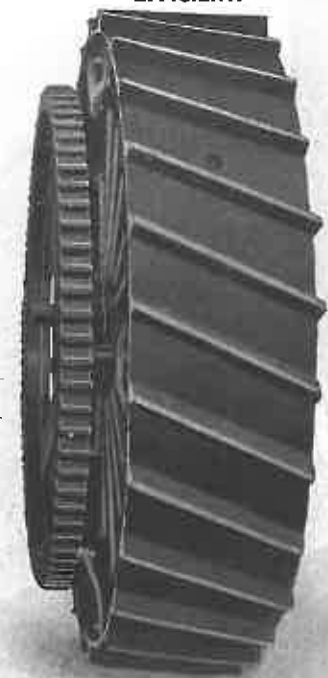
THE RUSSELL & COMPANY

THE "RUSSELL" GROUND WHEELS AND HEAVY SPUR WHEELS.

DURABLE.



EFFICIENT.

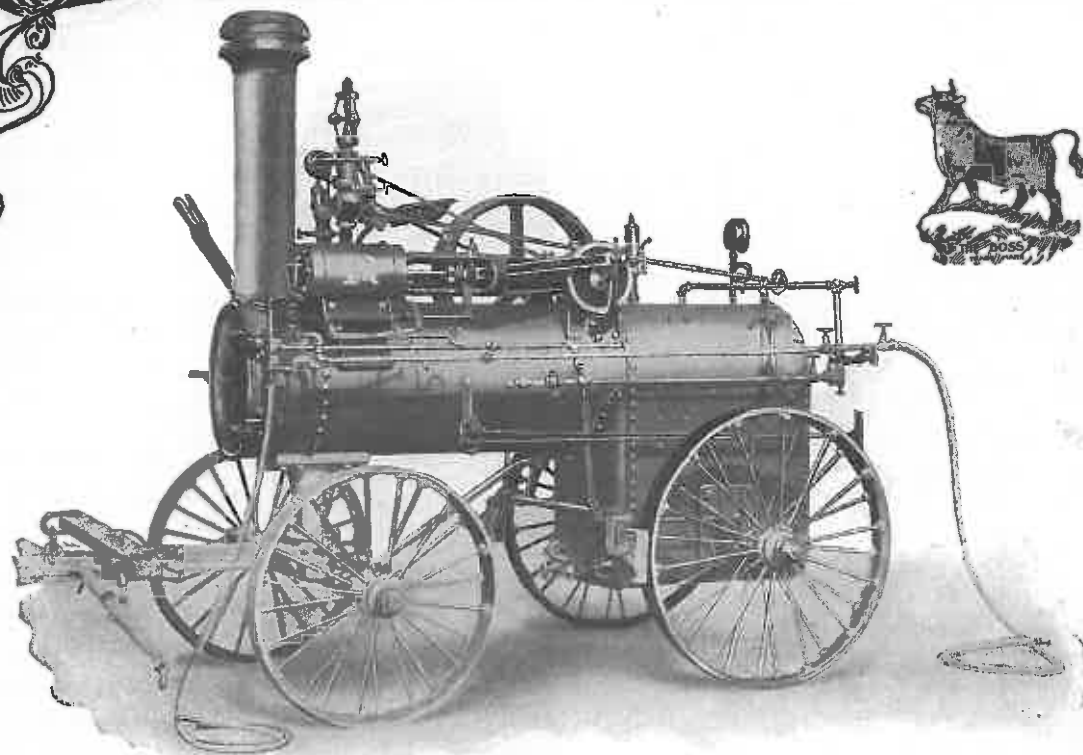


The above cuts illustrate our Rear Ground Wheels, with diagonal cleats, thoroughly braced to take the strain from the hub, and warranted to stand the severe strain that they are subjected to. This wheel cleans itself quickly and effectually.

Our front and rear wheels have ample width of face to carry the engine on soft soil. See page 23 for further description. Dimensions of wheels with different engines will be found in specifications on pages 26 and 27.

THE RUSSELL & COMPANY

THE "RUSSELL" 5" x 7" PORTABLE ENGINE.



The small outfit, consisting of 5x7 Portable Engine and 18x27 Low Down Separator, shown on this and the next page, was first prepared and built for the southern trade, but the demand has steadily grown and we now describe and illustrate it in our general year book. The specifications are complete and give full detailed information. It is particularly designed for the hilly country, where it is rapidly replacing the horse-power, but it is used in many cases by those having small jobs of threshing, in all parts of the country.

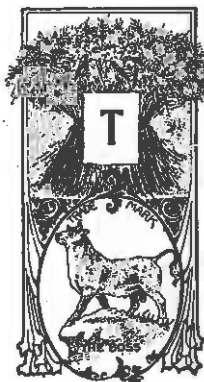
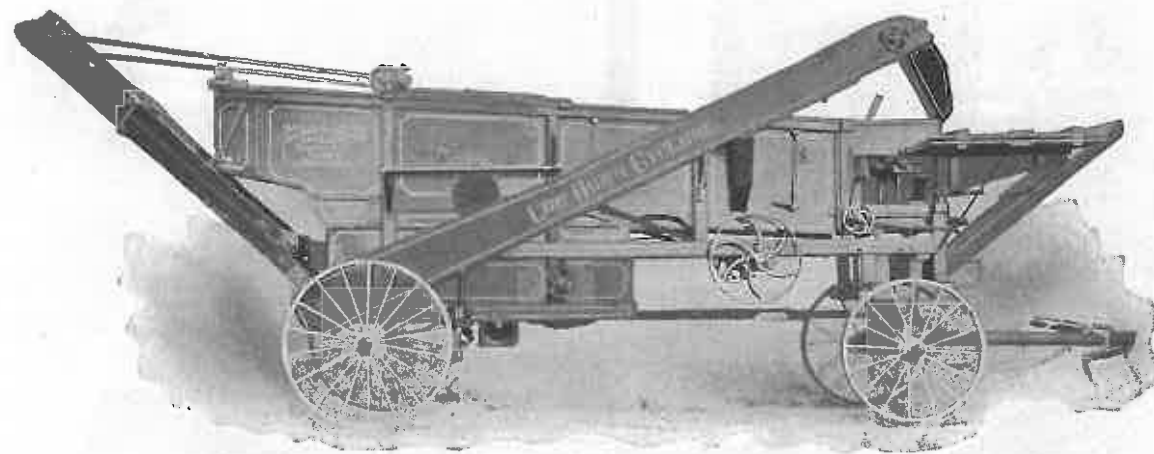
THE "BABY"

SPECIFICATIONS:

ENGINE.	
Diameter of Cylinder.....	5"
Stroke of Engine.....	7"
Revolutions, per minute.....	250
Fly Wheel, diameter.....	28"
Fly Wheel, face.....	6½"
Horse Power, nominal.....	6
Horse Power, maximum.....	9
Rear Ground Wheel.....	42"x4"
Front Ground Wheel.....	36"x4"
BOILER.	
Diameter of Shell.....	22"
Fire Box, length.....	24"
Fire Box, width.....	19"
Fire Box, height.....	31"
Tubes, number.....	28
Tubes, length.....	48
Tubes, diameter.....	1¾"
Grate Surface (square feet).....	3½
Length over all.....	7' 10½"
ENGINE AND BOILER COMPLETE.	
Length over all.....	8' 4¾"
Width over all.....	4' 3"
Height.....	7' 7½"
Width of Tread, center to center of wheels.....	3' 11"
Weight, Engine and Boiler com- plete, pounds.....	4,000

THE RUSSELL & COMPANY

THE MASSILLON "LOW-DOWN" THRESHER. THE "BABY"



THIS is a progressive proposition to people who use powers—horse-powers!

It is no longer necessary for grain growers in the hills and mountains or users having small threshing jobs, to use horse-powers, with all the attendant delays, annoyances and expense incidental to such slow and unprogressive methods, when we can furnish a steam threshing outfit which can be hauled wherever a horse-power outfit can be taken.

Our "Baby Engine" and "Low-Down" Thresher, described and illustrated herein, are destined to revolutionize threshing in the hilly country.

SPECIFICATIONS:

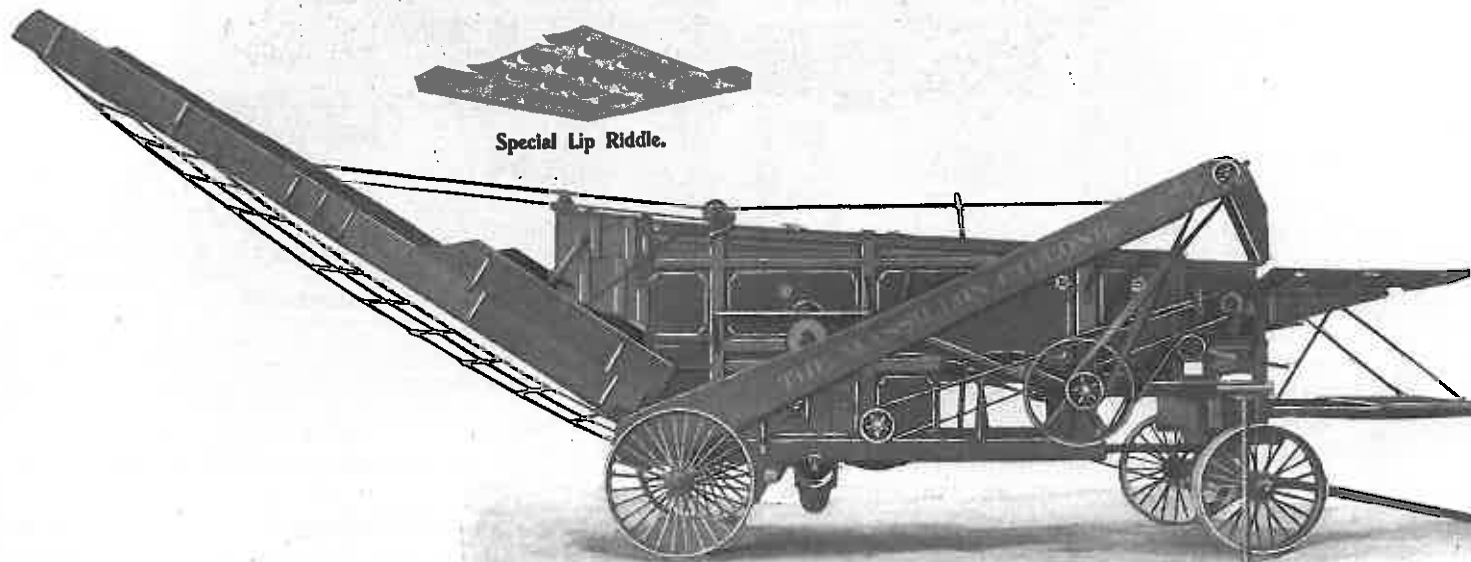
LOW-DOWN SEPARATOR.

Length of Cylinder.....	18"
Width of Separator Rear.....	27"
Revolutions of Cylinder, per minute.....	1,100
Cylinder Pulley.....	6" x 6"
Cylinder Shaft, diameter.....	2"
Crank Shaft, diameter.....	1 3/4"
Length over all, from end feed board to end stacker, folded.....	23' 6"
Width over all.....	5' 1"
Height to Top of Folded Stacker.....	9' 1"
Width of Tread, center to center of wheels.....	4' 9"
Rear Ground Wheel.....	42" x 4"
Front Ground Wheel.....	36" x 4"
Width of Riddles.....	2' 1"
Length of Riddles.....	2' 5 1/2"
Weight, mounted complete, pounds.....	4,000

THE RUSSELL & COMPANY



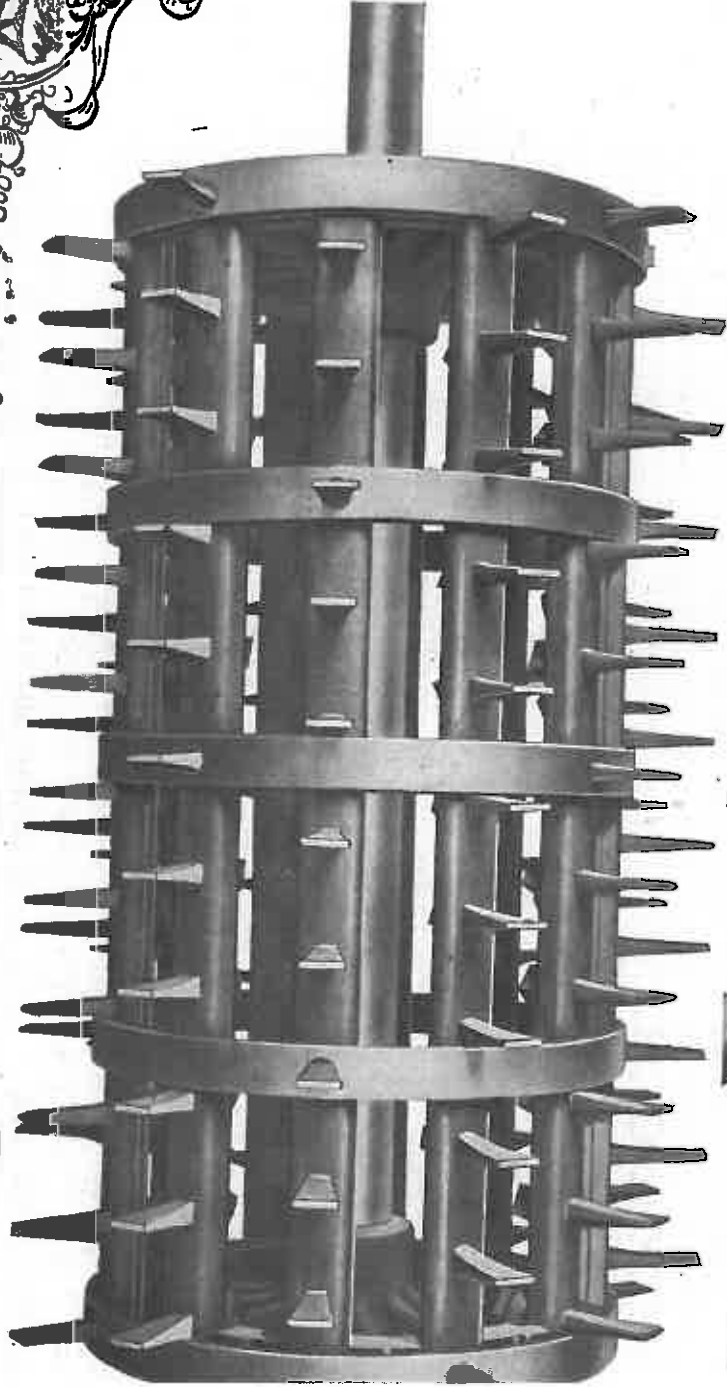
Special Lip Riddle.



The Massillon "Cyclone" Thresher—Elevator Side.

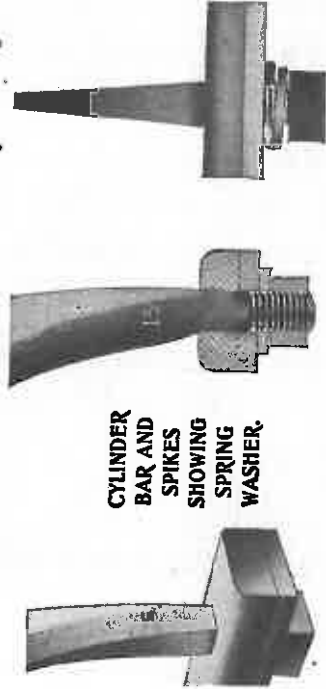
(See page 52 for sizes.)

RUSSELL & COMPANY



**THE IMPROVED LARGE
CYLINDER USED IN
"CYCLONE" MACHINES**

Double bars, steel laid spikes—held by spring washers and heavy nuts—the best balanced, smoothest running cylinder extant, and will thresh out more grain than any other cylinder made.



**CYLINDER
BAR AND
SPIKES
SHOWING
SPRING
WASHER.**

STANDARD SPECIFICATIONS.
THRESHERS BUILT BY
The Russell & Co., Massillon, Ohio, U. S. A.

NOTES!—All dimensions are in inches, except as noted.	LOW DOWN THRESHERS.				MASSILLON CYCLONE.						
	18x37	24x34	27x40	30x48	30x46	33x50	33x54	36x54	36x56	36x60	40x60
Length of Cylinder	18	24	27	30	30	33	33	36	36	36	40
Width of Thresher—(separating chamber)	27 $\frac{1}{2}$	34 $\frac{1}{2}$	40 $\frac{1}{2}$	48 $\frac{1}{2}$	45 $\frac{1}{2}$	49 $\frac{1}{2}$	53 $\frac{1}{2}$	53 $\frac{1}{2}$	56 $\frac{1}{2}$	59 $\frac{1}{2}$	59 $\frac{1}{2}$
Diameter of Cylinder	17	17	17	17	17	17	17	17	17	17	17
Diameter of Cylinder (including spikes)	22	22	22	22	22	22	22	22	22	22	22
Number of Bars in Cylinder	12	12	12	12	12	12	12	12	12	12	12
Number of Bands on Cylinder	3	4	5	5	5	5	5	5	5	5	5
Number of Spikes in Cylinder	64	88	96	108	108	120	120	128	128	128	140
Speed of Engine—revolutions per minute	250	225	225	225	225	225	225	225	200	200	200
Size of Engine Fly Wheel—(belt wheel)	82x8	86x10	86x10	86x10	86x10	86x10	86x10	86x10	42x14	42x14	42x14
Size of Thresher Cylinder Pulley—(dia. x face) driven	6x6	7x8	7x8	7x7	9x8	9x8	9x9 $\frac{1}{2}$	9x9 $\frac{1}{2}$	9x9 $\frac{1}{2}$	9x9 $\frac{1}{2}$	9x9 $\frac{1}{2}$
Speed of Thresher Cylinder—revolutions per minute	1150	1150	1150	1150	1150	1150	1150	1150	1150	1150	1150
Diameter of Cylinder Shaft	2	2	2	2	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Size of Cylinder Shaft Pulley to Drive Fan	4x3	4 $\frac{1}{2}$ x3	4 $\frac{1}{2}$ x3 $\frac{1}{2}$	4 $\frac{1}{2}$ x3 $\frac{1}{2}$	5x4 $\frac{1}{2}$	5x4 $\frac{1}{2}$	5x4 $\frac{1}{2}$	5x4 $\frac{1}{2}$	5x4 $\frac{1}{2}$	5x5 $\frac{1}{2}$	5x5 $\frac{1}{2}$
Size of Fan Shaft Pulley—(driven)	8x3	8x3	8x3 $\frac{1}{2}$	8x3 $\frac{1}{2}$	9x4	9x4	9x4	9x4	9x4	9x5	9x5
Speed of Fan—revolutions per minute	620	620	620	620	640	640	640	640	640	640	640
Diameter of Fan Shaft	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Size of Cylinder Shaft Pulley to Drive Main Crank Shaft	4x3 $\frac{1}{2}$	4 $\frac{1}{2}$ x4	4 $\frac{1}{2}$ x5	4 $\frac{1}{2}$ x5	5x5 $\frac{1}{2}$	5x5 $\frac{1}{2}$	5x5 $\frac{1}{2}$	5x5 $\frac{1}{2}$	5x5 $\frac{1}{2}$	5 $\frac{1}{2}$ x7 $\frac{1}{2}$	5 $\frac{1}{2}$ x7 $\frac{1}{2}$
Size of Main Crank Shaft Pulley—(driven)	24x3 $\frac{1}{2}$	24x4	24x5	24x5	30x5	30x5	30x6	30x6	30x6	30x7	30x7
Speed of Main Crank Shaft—revolutions per minute	190	190	190	190	190	190	190	190	190	190	190
Diameter of Main Crank Shaft	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Size of Cylinder Shaft Pulley to Drive Pneumatic Stacker		9x4	9x5	9x5	9x5	9x5	9x5	9x5	9x5	9x5	9x5
Size of Pulley on Pneumatic Stacker Shaft—(driven)		14x4	14x5	14x5	14x5	14x5	14x5	14x5	14x5	14x5	14x5
Speed of Pneumatic Stacker Fan—revolutions per minute		740	740	740	740	740	740	740	740	740	740
Diameter of Pneumatic Stacker Fan		34	39	42	42	44	46	46	46	48	48
Diameter of Pneumatic Stacker Fan Housing		40	46	50	50	52	54	54	54	58	58
Number of Fan Blades		8	8	8	8	8	8	8	8	8	8
Width of Fan Blades		8	8	8	8	8	8	8	8	8	8
Diameter of Chute		13	13	13	15	15	15	15	15	15	15
Length of Telescope Chute—closed—feet		12'	12'	12'	12'	12'	12'	12'	12'	12'	12'
Length of Telescope Chute Extended—feet		19'	19'	19'	19'	19'	19'	19'	19'	19'	19'
Weight of Pneumatic Stacker Complete—pounds		1525	1560	1695	1780	1765	1801	1801	1873	1909	1909
Size of Main Crank Shaft Pulley to Drive Elevator	8 $\frac{1}{2}$ x2	10x2	10x2	10x2	10x2	10x2	10x2 $\frac{1}{2}$	10x2 $\frac{1}{2}$	10x2 $\frac{1}{2}$	10x2 $\frac{1}{2}$	10x2 $\frac{1}{2}$
Size of Elevator Shaft Pulley—(driven)	7x2	7x2	7x2	7x2	7x2	7x2	7x2 $\frac{1}{2}$	7x2 $\frac{1}{2}$	7x2 $\frac{1}{2}$	7x2 $\frac{1}{2}$	7x2 $\frac{1}{2}$
Speed of Elevator Shaft—revolutions per minute	270	270	270	270	270	270	270	270	270	270	270
Speed of Elevator Carrier Belt—(feet per minute)	220	220	220	220	220	220	220	220	220	220	220
Size of Main Crank Shaft Pulley to Drive Spiral & and Beaters	12x2 $\frac{1}{2}$	12x3	12x3	12x3	12x4	12x4	12x4	12x4	12x4	12x4	12x4
Size of Spiral Beater Pulley	12x2 $\frac{1}{2}$	12x3	12x3	12x3	12x4	12x4	12x4	12x4	12x4	12x4	12x4
Size of Spiral Beater Shaft—(square)	1	1	1	1	1	1	1	1	1	1	1

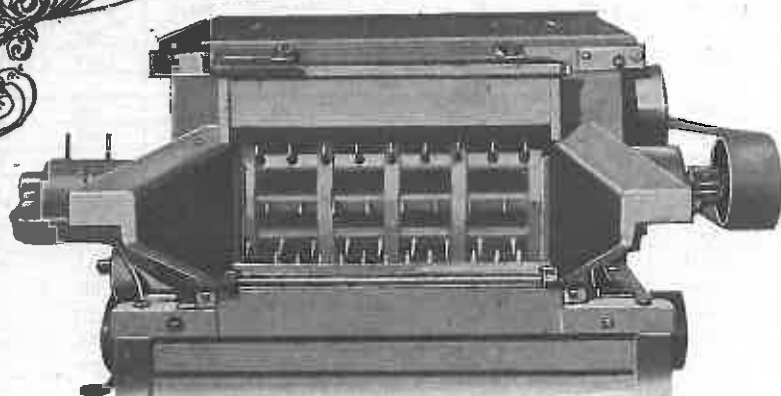
Revised 12-1-08.

STANDARD SPECIFICATIONS. **THRESHERS BUILT BY** **The Russell & Co., Massillon, Ohio, U. S. A.**

NOTE! All dimensions are in inches, except as noted.	LOW DOWN THRESHERS.				MASSILLON CYCLONE.						
	18x27	24x34	27x40	30x48	30x46	38x50	38x54	36x54	36x56	36x60	40x60
Speed of Spiral Beater—revolutions per minute	190	190	190	190	190	190	190	190	190	190	190
Size of Second Beater Pulley	12x2½	12x3	12x3	12x3	12x4	12x4	12x4	12x4	12x4	12x4	12x4
Size of Second Beater Shaft—(square)	1	1	1	1	1	1	1	1	1	1	1
Speed of Second Beater—revolutions per minute	190	190	190	190	190	190	190	190	190	190	190
Size of Main Crank Shaft Pulley to Drive Extension Table	10x2½	10x2½	10x3	10x3	10x3	10x3	10x3	10x3	10x3	10x4	10x4
Size of Extension Crank Shaft Pulley—(driven)	9x2½	9x2½	9x3	9x3	9x3	9x3	9x3	9x3	9x3	9x4	9x4
Speed of Extension Crank Shaft—revolutions per minute	210	210	210	210	210	210	210	210	210	233	233
Diameter of Extension Crank Shaft	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½	1½
Size of Pulley on Fan Shaft to Drive Tailing Conveyor	4x2	4x2½	4x3	4x3	4x3	4x3	4x3	4x3	4x3	5x3	5x3
Size of Pulley on Tailing Conveyor	8½x2½	8½x2½	8½x3	8½x3	8½x3	8½x3	8½x3	8½x3	8½x3	8½x3	8½x3
Speed of Tailing Conveyor—revolutions per minute	290	290	290	290	300	300	300	300	300	375	375
Size Pulley on Extension Crank Shaft to Drive Grain Conv'or	4x2	4x2	4x2	4x2	4x2	4x2½	4x2½	4x2½	4x2½	4x2½	4x2½
Size of Pulley on Grain Conveyor Shaft—(driven)	4x2	4x2	4x2	4x2	4x2	4x2½	4x2½	4x2½	4x2½	4x2½	4x2½
Speed of Grain Conveyor—revolutions per minute	210	210	210	210	210	210	210	210	210	233	233
Size of Pulley on Fan Shaft to Drive Common Stacker	4x2	4x2½	4x3	4x3	4x3	4x3	4x3	4x3	4x3	5x3	5x3
Size of Pulley on Stacker Foot Shaft	12x2	12x2½	12x3	12x3	12x3	12x3	12x3	12x3	12x3	12x3	12x3
Speed of Stacker Foot Shaft—revolutions per minute	200	200	200	200	212	212	212	212	212	212	212
Speed of Stacker Straw Carrier—(in feet per minute)	365	365	365	365	385	385	385	385	385	480	480
Length of Common Stacker—(in feet)	16	18	18	18	18	18	18	18	18	18	18
Length, end of Feedboard to end of Common Stacker, folded	28' 6"	28' 6"	28' 6"	28' 6"	26' 0"	26' 0"	26' 0"	26' 0"	26' 0"	26' 0"	26' 0"
Length over all, from end of Feedboard to end of Pneu- matic Stacker, folded	24' 3"	24' 3"	24' 3"	24' 3"	26' 8"	26' 8"	26' 8"	26' 8"	26' 8"	26' 8"	26' 8"
Length over all, including Boss Band Cutter and Feeder and Pneumatic Stacker, folded, in feet and inches	24' 3"	24' 10"	24' 10"	24' 10"	27' 0"	27' 0"	27' 0"	27' 0"	27' 0"	27' 0"	27' 0"
Width over all—mounted	6' 0"	6' 5"	7' 0"	7' 3"	8' 0"	8' 4"	8' 8"	8' 8"	8' 8"	9' 2"	9' 2"
Height to Top of Common Stacker, folded	9' 1"	9' 1"	9' 1"	9' 1"	10' 3"	10' 3"	10' 3"	10' 3"	10' 3"	10' 3"	10' 3"
Height to Top of Pneumatic Stacker, folded	8' 8"	8' 8"	8' 8"	8' 8"	10' 0"	10' 0"	10' 0"	10' 0"	10' 0"	10' 0"	10' 0"
Width of Tread, center to center of wheels	4' 9"	5' 1"	5' 10"	6' 1"	6' 9½"	7' 1½"	7' 6"	7' 6"	7' 6"	7' 10"	7' 10"
Size of Rear Ground Wheels—(Dia. x Face)	42x4	42x4	42x4	42x6	42x6	42x6	42x8	42x8	42x8	42x8	42x8
Size of Front Ground Wheels—(Dia. x Face)	36x4	36x4	36x4	36x6	36x6	36x6	36x8	36x8	36x8	36x8	36x8
Speed of Open Beater—(driven with link belt)—rev. per min.	210	210	210	210	210	210	210	210	210	233	233
Speed of Boss Band Cutter & Feeder—(gov. shaft)—rev. per min.	270	270	270	300	300	300	300	330	330	330	330
Speed of Peoria Weigher—revolutions per minute	185	185	185	185	185	185	185	185	185	185	185
Speed of Ohio Bagger—revolutions per minute	510	510	510	510	510	510	510	510	510	510	510
Speed of Massillon Sattley Attached Stacker—(main drive shaft)—revolutions per minute	120 to 150	120 to 150	120 to 150	120 to 150	120 to 150	120 to 150	120 to 150	120 to 150	120 to 150	120 to 150	120 to 150
Speed of Dust Collector—revolutions per minute	1150	1150	1150	1150	1150	1150	1150	1150	1150	1150	1150
Speed of Attached Stacker—revolutions per minute	225	225	225	225	225	225	225	225	225	225	225
Width of Riddles	25½	31½	37½	39½	42½	46½	50½	50½	50½	56½	56½
Length of Riddles	29½	29½	29½	29½	35½	35½	35½	35½	35½	35½	35½
Weight Mounted comp'te with Iron Wheels & Common Stacker	4249	4662	4958	5146	6080	6280	6500	6540	6700	6800	6863

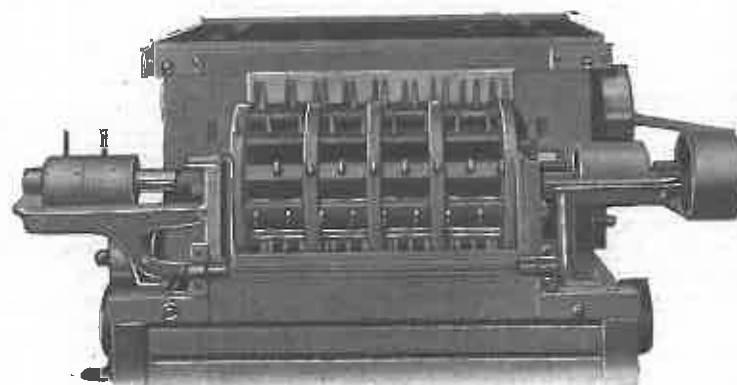
THE RUSSELL & COMPANY

THE MASSILLON "CYCLONE" AND "LOW-DOWN" THRESHERS.



Cylinder Front, Showing Cap Down.

Of the Massillon Threshers we make two models. The one of the largest capacity—for the great wheat fields—we call the "Cyclone." The other, embodying the same principles, but of a capacity suited to the regions where barn threshing is the rule, we call from its convenient proportions the "Low-Down"



Cylinder Front, with Cap Removed.

CYLINDERS.—All of our cylinders are large, have twelve double bars fitted on solid heads, carried on a heavy steel shaft running in large and heavy babbitted bearings, resting on iron cylinder sides and all held firmly in line, so that getting out of alignment and consequent heating of boxes is prevented.



Complete "Russell" Outfit Owned by Thos. Stinson, Troy, Idaho, at work near Genesee, Idaho, September, 1899.

THE RUSSELL & COMPANY

THE MASSILLON "CYCLONE" AND "LOW-DOWN" THRESHERS.

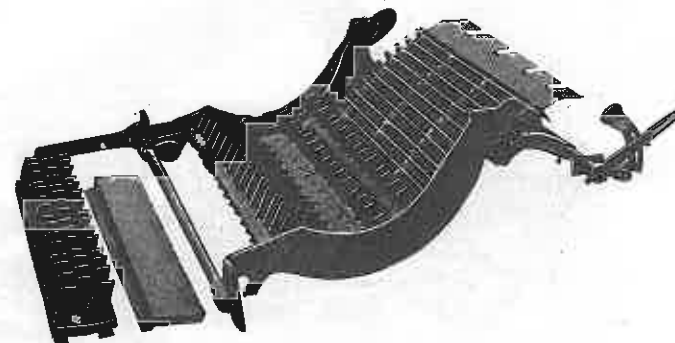
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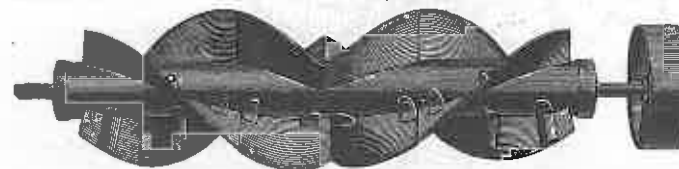
THE CYLINDER SPIKES used in the bars and bands of all our cylinders are improved steel-laid spikes. These combine with the toughness of the usual spike metal the hardness of tempered tool steel. A wedge-shaped piece of tool steel is firmly welded on to the softer metal, forged to shape and especially tempered. We can safely promise that a set of these spikes will outwear three sets of ordinary spikes. The position of this hardened steel is shown in the cut, and, as will be seen, represents the wearing part of the spike. We do not use these in heads or ears, as the wear there is so slight as to render them unnecessary; nor do we use them in the concaves for obvious reasons. We pack in the tool-box of each machine six extra cylinder spikes, also steel laid.

CONCAVES used with our cylinders are three in number, each for two rows of teeth, only two being filled with spikes. With machines for Pacific coast trade an extra three-rowed, and for other territory an extra two-rowed concave stave, spiked, is furnished for special use. They have been made very open, that such grain as is shelled out at first contact may pass directly

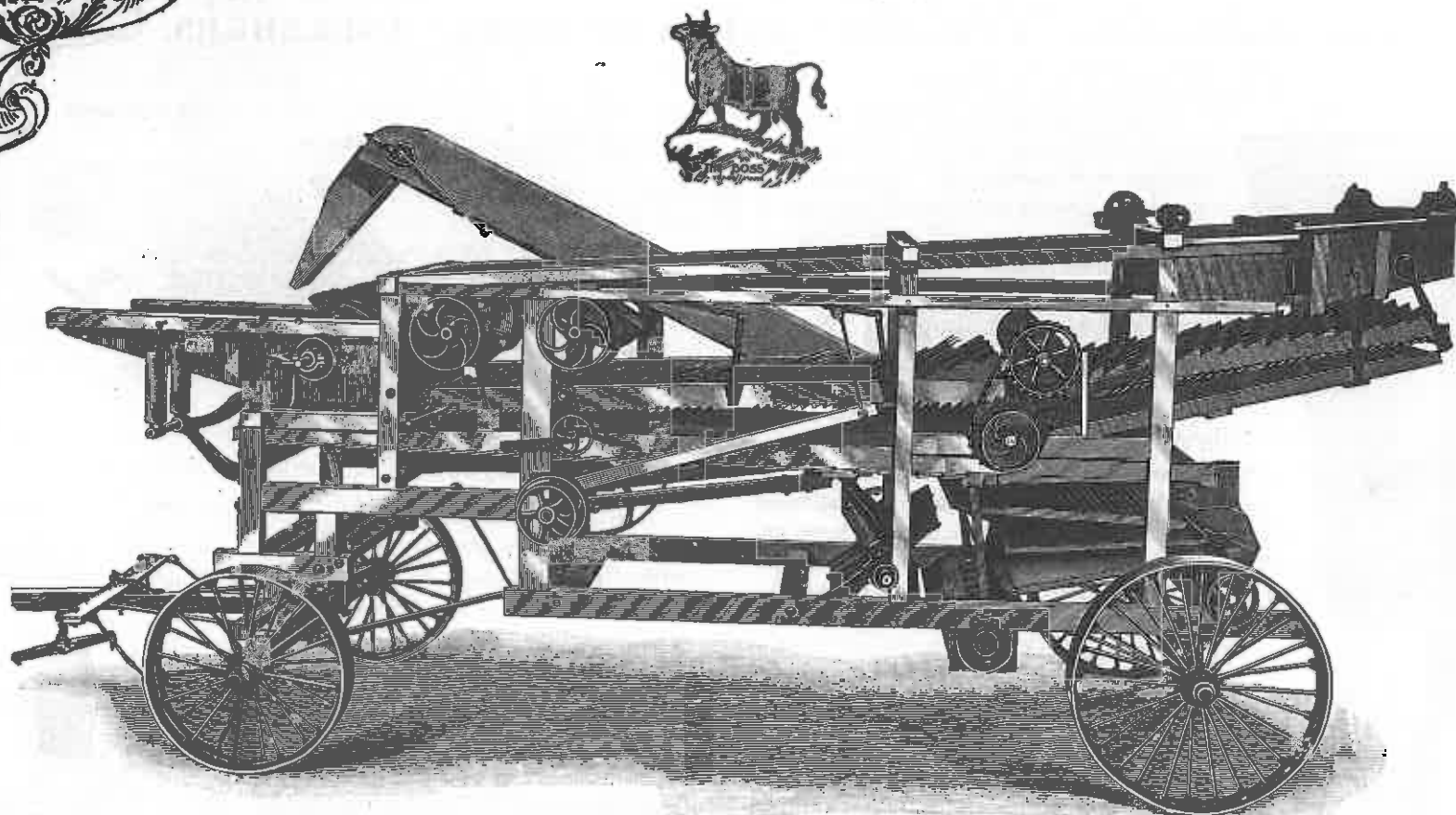
to the shoe since the more the separation in the first stage the less the work in succeeding stages.



ADJUSTABLE CONCAVES AND GRATE.—Our grate adjustment enables the operator to direct the straw and grain against the distributing beater at the exact angle to secure the most benefit from this valuable invention



RUSSELL'S PATENT DISTRIBUTING BEATER.—We place immediately behind the cylinder a distributing beater of novel construction. This consists of a central cylinder, on which are firmly fixed three sets of spiral wings or blades. These are made to diverge to the right and left from a projecting beak-like



The Massillon "Cyclone" Thresher—Interior View.

THE RUSSELL & COMPANY

THE MASSILLON "CYCLONE" AND "LOW-DOWN" THRESHERS.

CONTINUED.

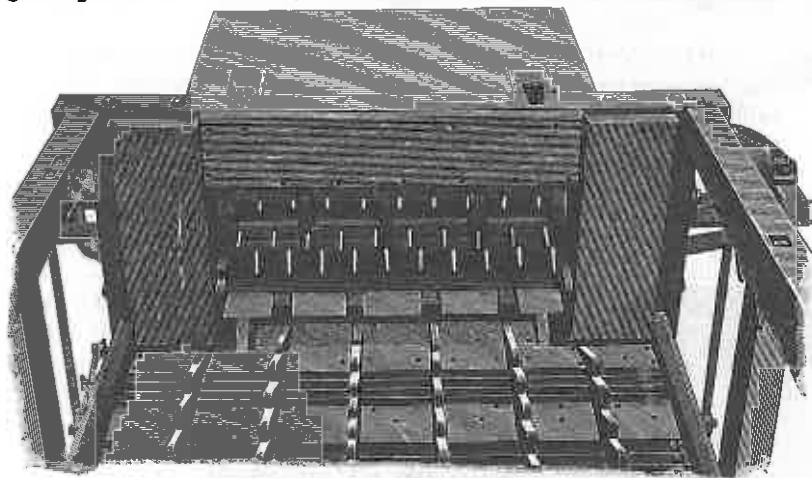
center. As the beater revolves, these beaks, one after the other plunge into the mass as it comes from the cylinder, and distributes it the full width of the table directly at the beginning of the wide part of the machine. This distributing beater is tapered slightly towards the ends by the narrowing of the spiral blades, so that the straw is deposited evenly and in the best possible shape for separation.

It is proven by experience that over two-thirds of the straw and grain passes under the cylinder at or near its middle—the wear of

most possible extent at the very cylinder itself. It is quite evident that lengthening out of grain or separating tables has well-nigh reached its limit. It therefore remains to make the best use of the present table by utilizing every inch of width and length.

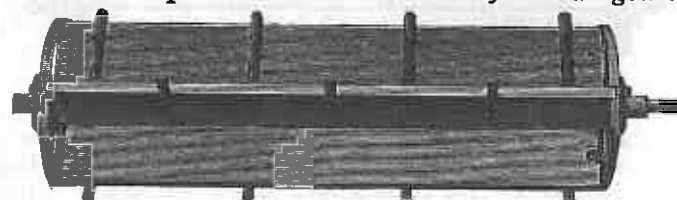
By the use of our beater, supplemented by the adjustable grate, we secure an entire freedom from back-lashing, together with the greatest ease of feeding.

Behind the spiral beater is the ordinary four-winged tooth-



Rear of Cylinder.

spikes shows the proportions—with the result, that by far the greatest amount of straw and grain is thrown to the center of the separating table. So compacted is this that without some distributor, a considerable space must be passed before the separation can be freely effected, notwithstanding it should be begun and carried to the ut-



Second Beater.

beater, the wings of which are set in such positions as to whip and beat the straw and open it out without the possibility of winding under ordinary conditions. (A set of lifting fingers can be substituted for this beater if desired, as in threshing flax, making three sets of fingers in all.)



THE RUSSELL & COMPANY

THE MASSILLON "CYCLONE" AND "LOW-DOWN" THRESHERS. CONTINUED.

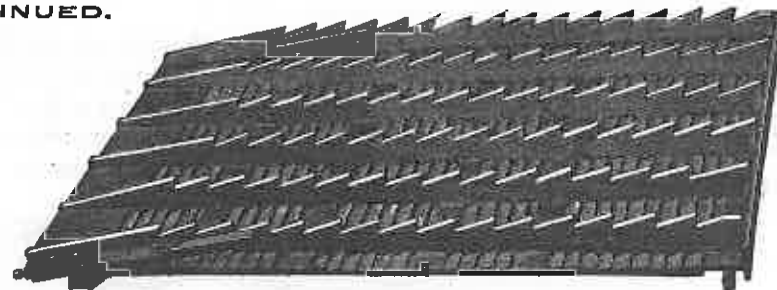
Between this beater and the first lifting fingers we hang a fall board or curtain, not shown in cut, the function of which is to stop flying kernels and drop them upon the table.

Next we place two or three sets of lifting fingers. These may be given much or little throw, as the condition of grain, its tendency to pack in the space between the notched strips, etc., may require. They serve to loosen and open out the mixture of straw, chaff and grain as it passes over them.



Open Picker or Beater.

Further, one or two open pickers (where two are used they are made to bear a fixed relation to each other) are so planned that as the straw passes over they act especially upon the lower layer, pulling it apart and loosening it, the grain passing freely through or between the pickers, while the straw falls fifteen inches to the extension table.



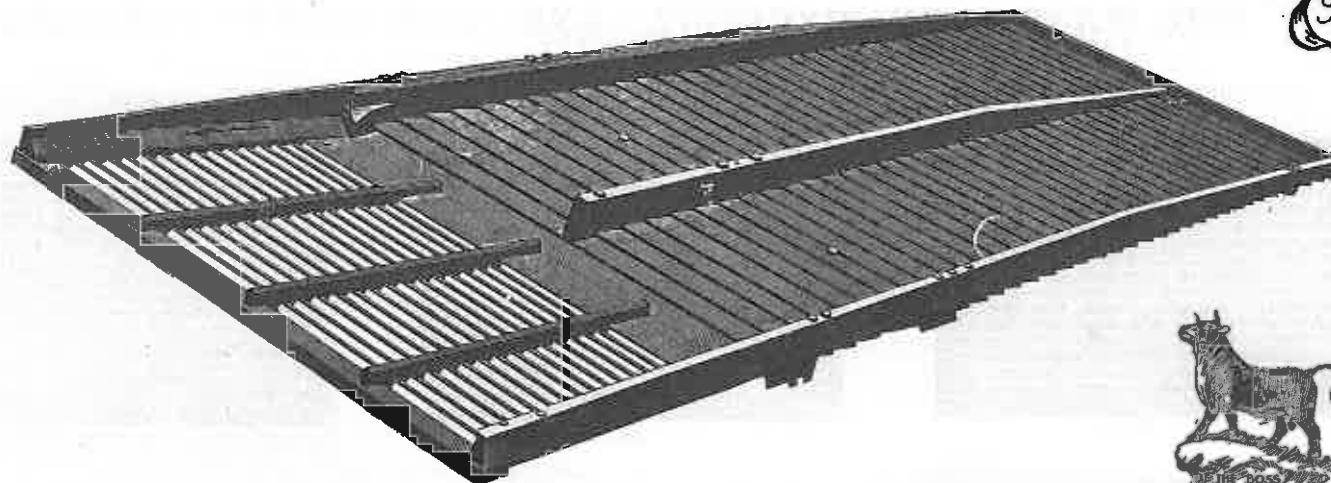
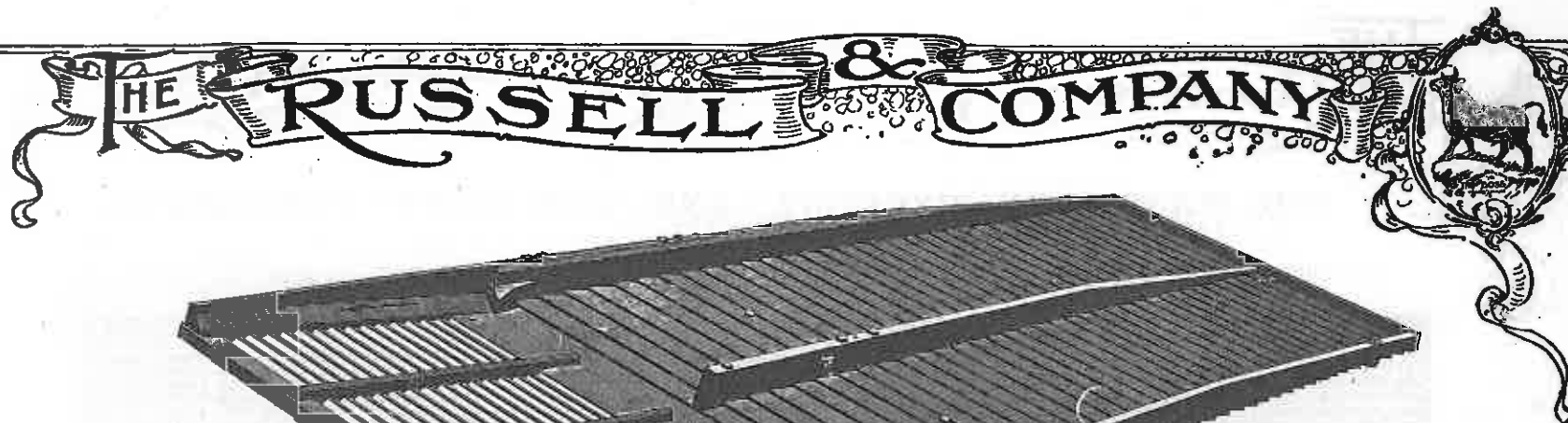
Extension Table.

THE EXTENSION TABLE has two motions—a rolling motion below and a vibrating motion at its upper and outer end. By this table the straw is given quite a rise, being discharged well up on the stacker, while the grain is carried back by the oscillating motion of the return board under this extension table, effectually preventing lodging or bunching of the grain at the upper end, especially in damp oats.

The delivery of the straw thus high allows of the separation of chaff when desired by removing a portion of the stacker bottom.



"ON THE ROAD."—Complete "Russell" Outfit. Owned by Schwenne & Hehl, Uniontown, Wash.



Galvanized Iron Grain Table with Slatted Distributor.

Underneath the upper table is placed our slatted grain table and distributor. This carries the chaff, grain and unthreshed heads back to the shoe, the distributor carrying the short stuff over and clear of the sieves permitting them to do their legitimate work of cleaning the grain and allowing the admission of a mild blast from the fan, preventing the blowing over of grain, a very important point especially in light oats.

The distributor can be removed and the corrugated or lip sieves substituted, thus giving us in connection with the various sieves we are prepared to furnish, a wide range of adjustment and enabling us to meet the wants of the threshermen in any locality.

THE RIDDLES regularly furnished are sufficient for the ordinary grains. Others will be special. Our experience has demonstrated that riddles must have special reference to the wants of a locality. We shall carefully study such wants and furnish on order as extra such as are demanded to meet local requirements. Any special riddle may be substituted for any one or more of the number regularly furnished with the machine.



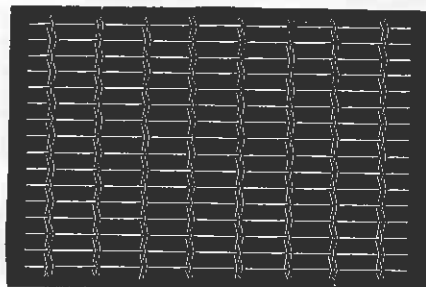
Slatted Distributor Over Riddles.

THE RUSSELL & COMPANY

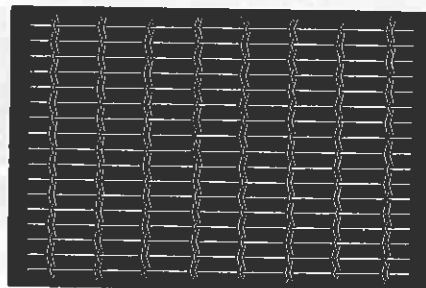
THE MASSILLON "CYCLONE" AND "LOW-DOWN" THRESHERS.

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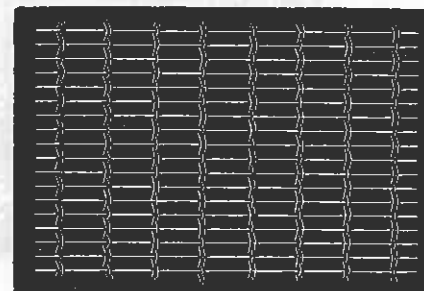
Different size screens used in different localities furnished with the Massillon Threshers. Dimensions given are the number of Meshes to the inch and cuts represent exact sizes.



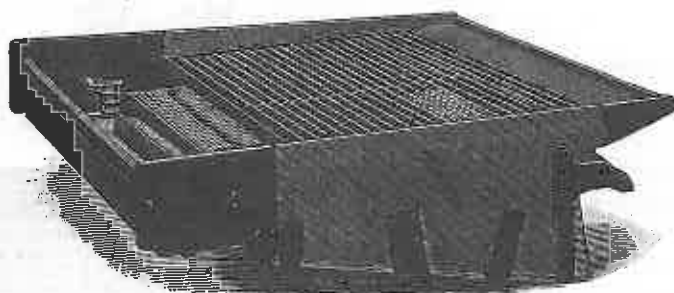
4 x 12.



4 x 13.



4 x 14.



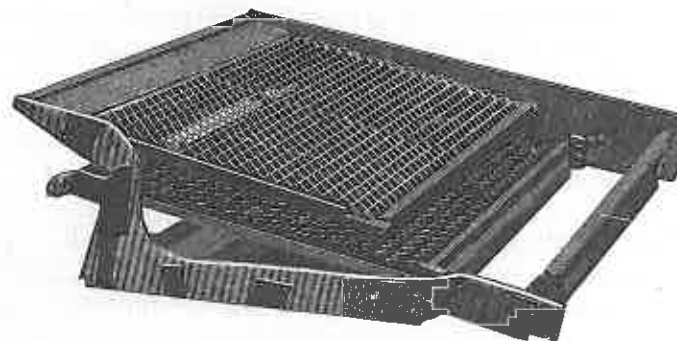
Shoe Showing Patent Riddle Holders.

In the case of flax three special riddles are required, but as two of these are used for timothy as well, the flax and timothy attachment requires but four riddles.

In the matter of screens we have in stock the sizes as shown in the cuts on this page. We shall be glad to have customers choose the one they prefer. In the absence of choice, we shall send the one which, in our judgment, is the best for the section into which the machine goes. In case an exchange is desired before use, it can be arranged through agents without expense.

Both the "Cyclone" and "Low-Down" machines are used successfully in threshing orchard grass seed, rice, red top, millet, buckwheat, peas; in fact, in all grains or seeds that any thresher can handle.

If a cleaning arrangement is desired for any special seed other than those generally known, on receipt of a small sample of the seed we will take pleasure in sending out riddles especially designed for the work.

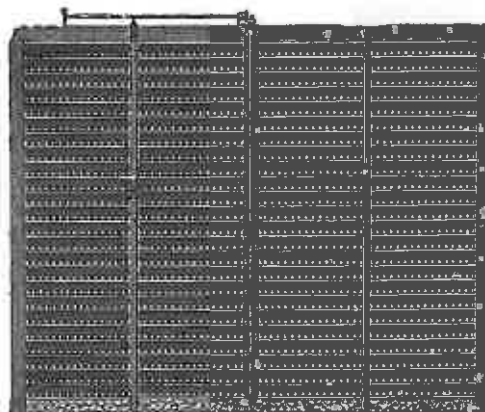


End Shake Shoe.

The "Cyclone" Machine is Unexcelled for Rapid Threshing, Thorough Separation and Superior Cleaning.



THE DITCH ADJUSTABLE SIEVE.



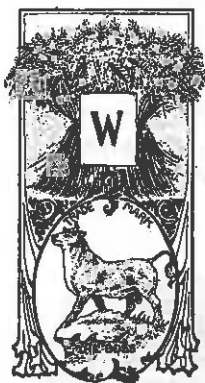
The Ditch Adjustable Sieve.

The manufacturers of this sieve claim that the purchaser takes no chances either as to patents or the utility and working capacity of the sieve.

That it saves time for the farmer as well as for the thresherman; time is money and expense saved for both, for the reason that the one sieve will handle all kinds of grain and never need be moved from the machine.

That it never clogs, no matter how fast you thresh, or in what condition the grain or straw. A few turns of the adjusting wheel is all that is necessary to change from one grain to another. This saves hours of time for the thresherman in the season, besides the annoyance of carrying a half dozen sieves around to be tramped on and broken.

That it is the most durable sieve made. The frame is mortised and tenoned and provided with center pieces, thoroughly soaked in boiled linseed oil, which makes it strong and durable. The sieve itself is made of the highest grade of galvanized iron. The slats which are provided with lips, give it all the qualities of both lipped or round hole sieves. They have an oscillating movement, and are controlled by a center draw, at the end of which is a hand-wheel, enabling the operator to open or close it at will in an instant. No cutting or marring of the shoe, either for the side or end adjustment. To our customers who prefer an adjustable sieve, we can recommend and furnish the "Ditch," but extend the manufacturer's guarantee only.



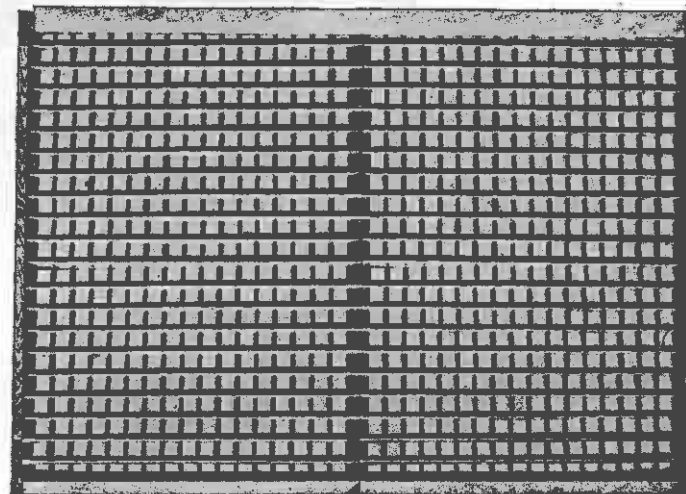
We furnish regularly with each machine, besides the screen, tailing and corrugated sieves of our own make, those for wheat, oats and barley. Any special kind wanted must be specified in the order. We send regularly the sizes which, in our judgment, are best suited to the section into which the machine goes. The condition of the GRAIN often times requires different adjustments which the experienced thresherman understands. Any special sieve may be substituted for any one or more of those of our own make regularly furnished. ADDITIONAL sieves, for special grain or seeds, will be charged for extra.

The Ditch Adjustable Sieve.

Or, we will furnish one common chaffer (used in addition to our slatted distributor), one DITCH ADJUSTABLE SIEVE, one screen and one tail riddle, WHEN SPECIALLY ORDERED, in place of the regular riddles specified above.

When ordered in addition to our regular riddles, with machines, this Ditch Adjustable Sieve will be charged for at \$12.00 list extra.

When sold as an extra, the price for this adjustable sieve will be, for 50" wide and under, \$12.00; for sieve above 50" in width, \$14.00.



The Corrugated Chaffer.



Our New Heavy Forged Steel Crank Shaft.—2 $\frac{1}{8}$ " in diameter.

SHAFTING.—Realizing the important and heavy work required of the main crankshaft, especially when automatic stackers or self-feeders are attached, we make them unusually heavy and of forged steel. On the large machines, 46" rear and upwards, there are four strong bearings. This insures steady motion and reduces the liability of breakage to a minimum.

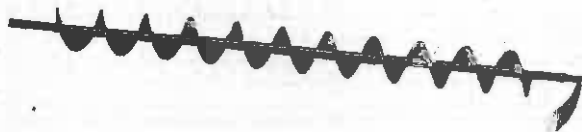
All cylinder, crank, fan stacker and other shafts are of ample dimensions, and are made especially heavy to stand all possible strains of the different working parts. We invite comparison of shafting with any other machine on the market. No other machine will run so smoothly.



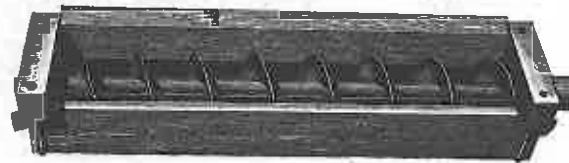
New Extension Crank Shaft for Oscillating Return.—1 $\frac{9}{16}$ " in diameter.

The extension crank shaft is provided with weighted balance pulleys overcoming any tendency on the part of the tables to cause jumping of the thresher and insuring steady and quiet running. No bracing or blocks are required, simply the setting of the lock.

The grain and tailing grain conveyor shafts consist of continuous wrought steel flights, fastened onto a gas pipe shaft, insuring lightness, strength, durability and positive and rapid delivery of grain.



Tailing Auger.



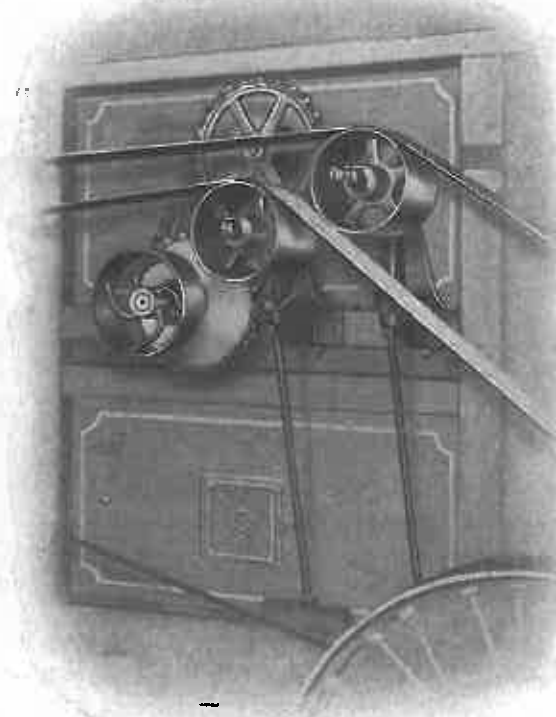
Grain Auger.

THE RUSSELL & COMPANY

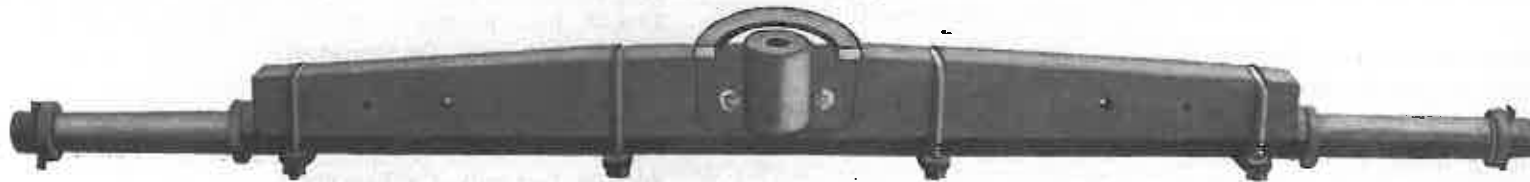
BEST TIGHTENERS AND TRUCKS.



BELT TIGHTENERS AND IDLERS.—The belts from the cylinder to crank shaft, and from crank shaft to drive beaters have improved tighteners with provision for easy and certain lubrication. We also furnish independent idlers, arranged so they can be adjusted separately, for the drive belt from cylinder to wind stacker. This acts as a guide by means of which the belt is run over and clear of the truck wheel, enabling us to shorten up the rear axle, and also permitting of attaching our bagger when desired. The independent adjustment of each idler will enable the operator to easily throw the belt one way or the other and keep it in alignment.



TRUCKS.—The trucks upon which our machines are mounted are thoroughly built, well ironed and will safely carry the thresher. Our axles consist of a piece of heavy round steel, the ends forming the spindles and on top of this is clamped a wooden bolster, making a very strong combination. We have recently increased the size of king bolt casting, which insures freedom from rocking of machine and tendency to hang down on one side or the other.

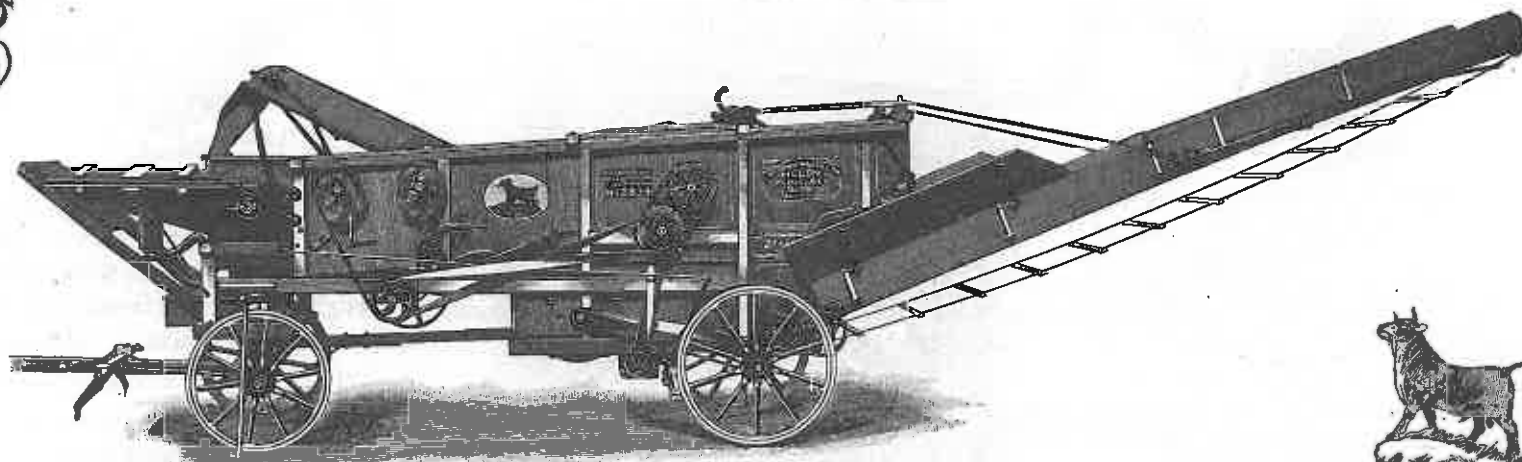


Strong Steel Axles, reinforced with wooden bolsters—best made—used on all "Cyclone" machines.

THE RUSSELL & COMPANY

THE MASSILLON "CYCLONE" AND "LOW-DOWN" THRESHERS.

CONTINUED.



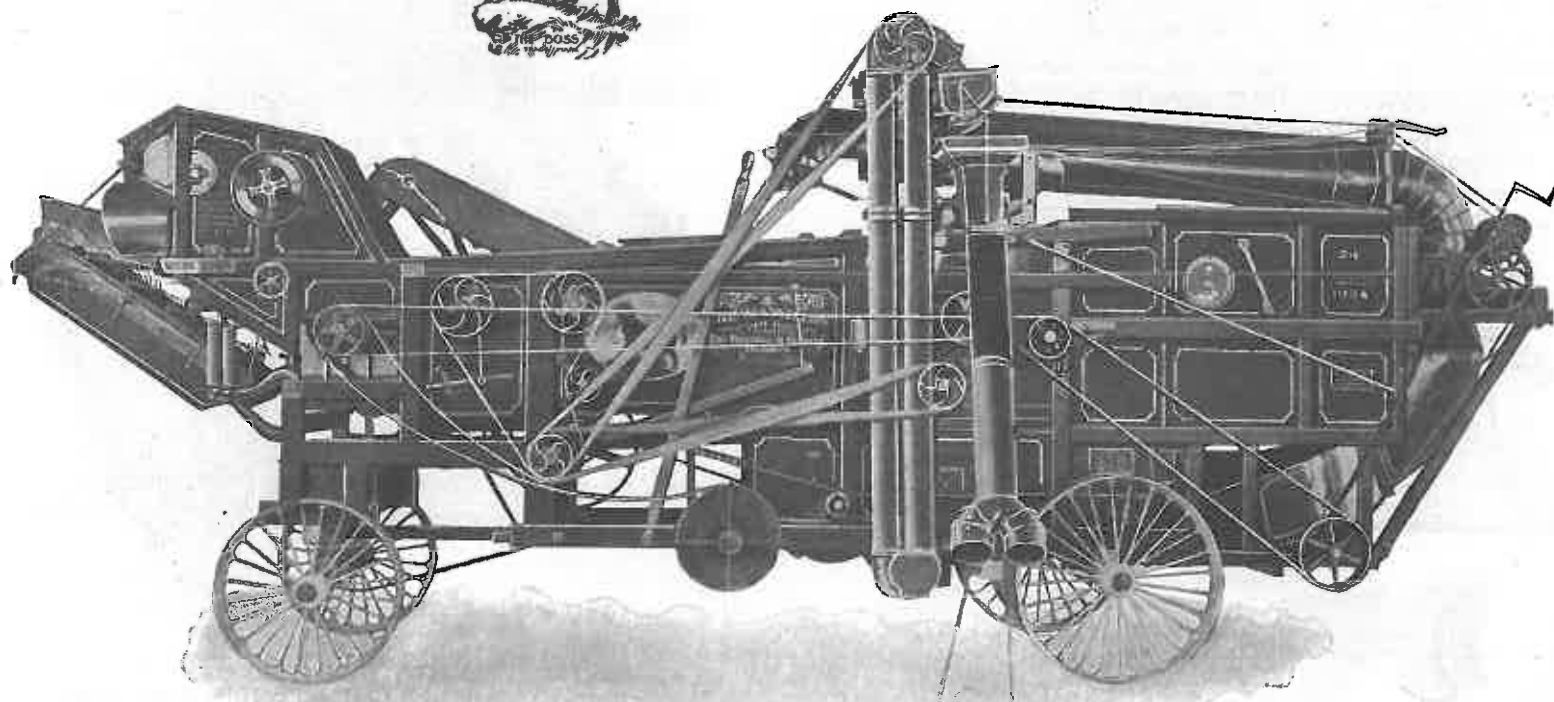
The Massillon "Low-Down" Thresher—Belt Side.

The "Low-Down" machine, as offered by us, will meet to the fullest extent the requirements of those for whom our Cyclones are of too great capacity or too large to move and handle, as in the very rough and hilly countries.

We have raised it to allow of the use of measures, making it easier to haul by reason of the larger wheels. Nearly eighteen inches less in average height than the Cyclones, and 1,000 pounds less in weight, they are none the less substantially built. Indeed, their compactness and strength are quite notable. The improved framing below cylinder already mentioned and the new belt tighteners will be found on these machines.

SIZES.—We aim to carry in stock the following sizes:

- 18 x 27, belt or gear, Low-Down style.
- 24 x 34, belt or gear, Low-Down style.
- 27 x 40, belt or gear, Low-Down style.
- 30 x 43, belt or gear, Low-Down style.
- 30 x 46, belt or gear, Cyclone style.
- 33 x 50, belt (geared on special order), Cyclone style.
- 33 x 54, belt only, Cyclone style.
- 36 x 54, belt only, Cyclone style.
- 36 x 56, belt only, Cyclone style.
- 36 x 60, belt only, Cyclone style.
- 40 x 60, belt only, Cyclone style.



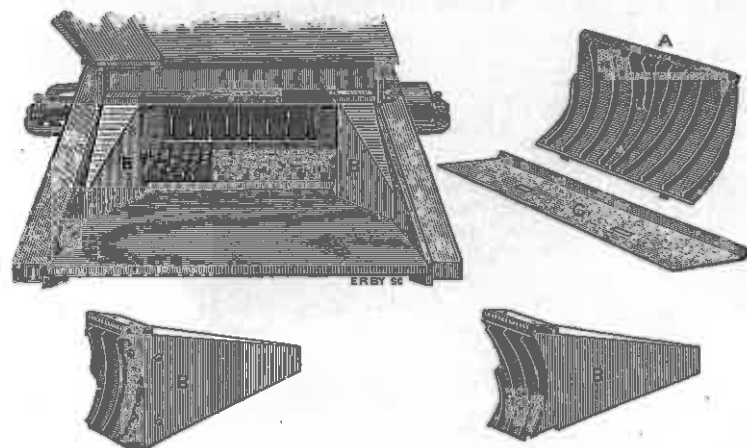
The Massillon "Cyclone" Thresher—Belt Side.
(See Page 52 for Sizes.) (Showing "Boss" Feeder and Weigher Attached.)

THE RUSSELL & COMPANY

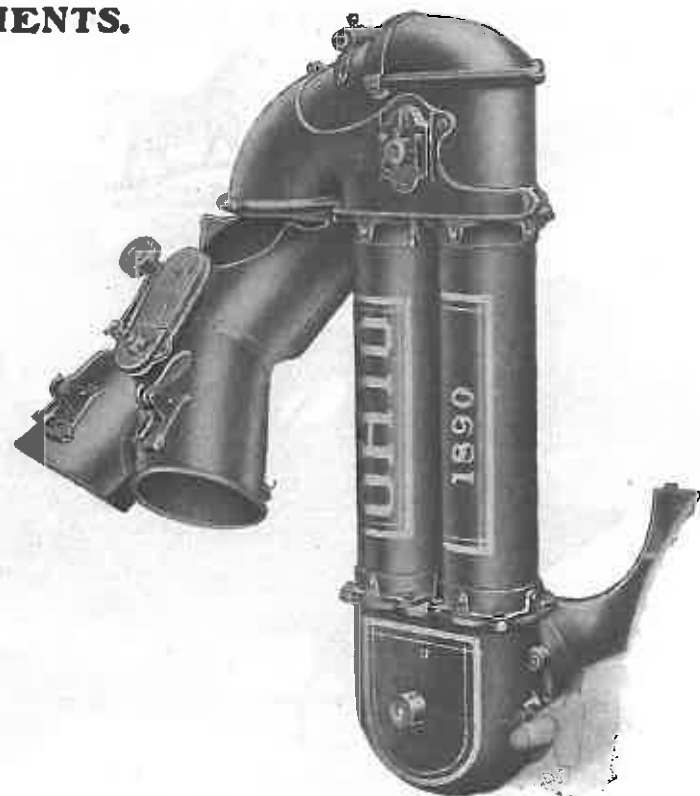
ATTACHMENTS.

OUR CLOVER ATTACHMENTS are most excellent for threshing small jobs. The cut we show of the front of the thresher with cylinder removed, will explain the arrangement of this. Wedge-shaped boxes are placed, one at the right, and the other at the left of the feeder, against the sides of the throat. At the rear of the cylinder opening will be noticed a concave casting with ribs running to the right and to the left. Corresponding ribbed castings are found on the wide face of wedges.

We send out as a part of the attachment, three full-spiked concaves, with three rows in each. For cleaning clover we use a clover riddle, wheat riddle, screen and tailing riddle.



The attachment just described is furnished for all our threshers larger than the 27x40. This having but a 27" cylinder, would be so narrowed by the wedge-shaped pieces, but little room would be left for feeding. We therefore substitute for the ribbed casting at the front and rear additional full-spiked concaves.

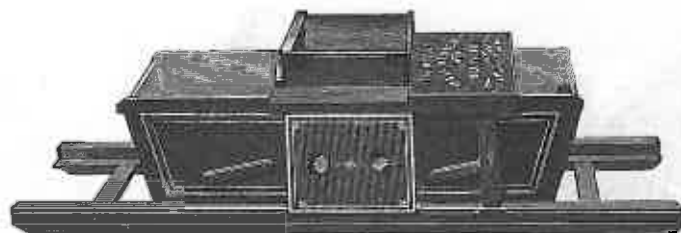


Ohio Steel Sacker and Tallyer.

Made entirely of steel and iron and will be found superior to any heretofore offered. Is not automatic, but tallies whatever it discharges into; sacks, measures or whatever is used. It is attached to, and carried by the frame work of the thresher, hence is always held in line with the driving pulley. It can be used on either side of the machine. Price, \$35.00.

THE RUSSELL & COMPANY

ATTACHMENTS—Continued.



Slide Measure and Register, with Bushel Boxes.

It measures and tallies at the same time. Price \$12.00.



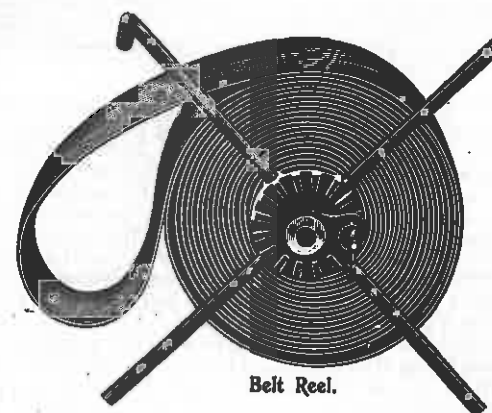
Cyclone Duster.

This Dust Collector is designed to be set on top of the machine and to draw the dust through a small opening in the deck and blow it through a canvas tube out of the barn or away from the machine. It is provided with two outlets, one being closed while the other is used, so that the dust may be blown out at either side of the barn. With the Dust Collector the barn is kept almost dustless while threshing. Price, with canvas tube, \$20.00.



"Boss" Register.

It is placed under the grain spout when in use. The measures which are used in connection with this register are extra. Price, without measures, \$6.00.

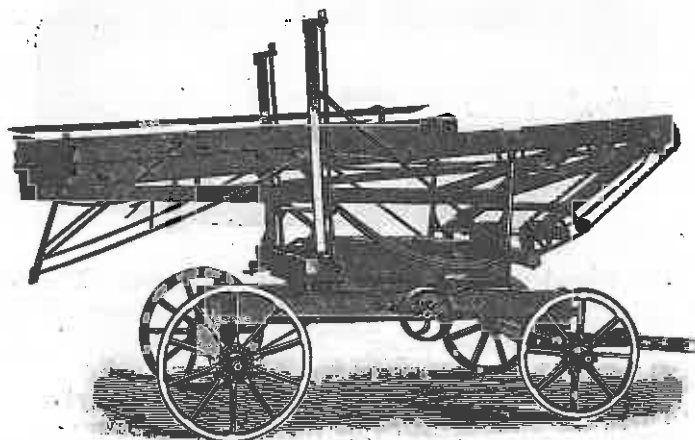


Belt Reel.

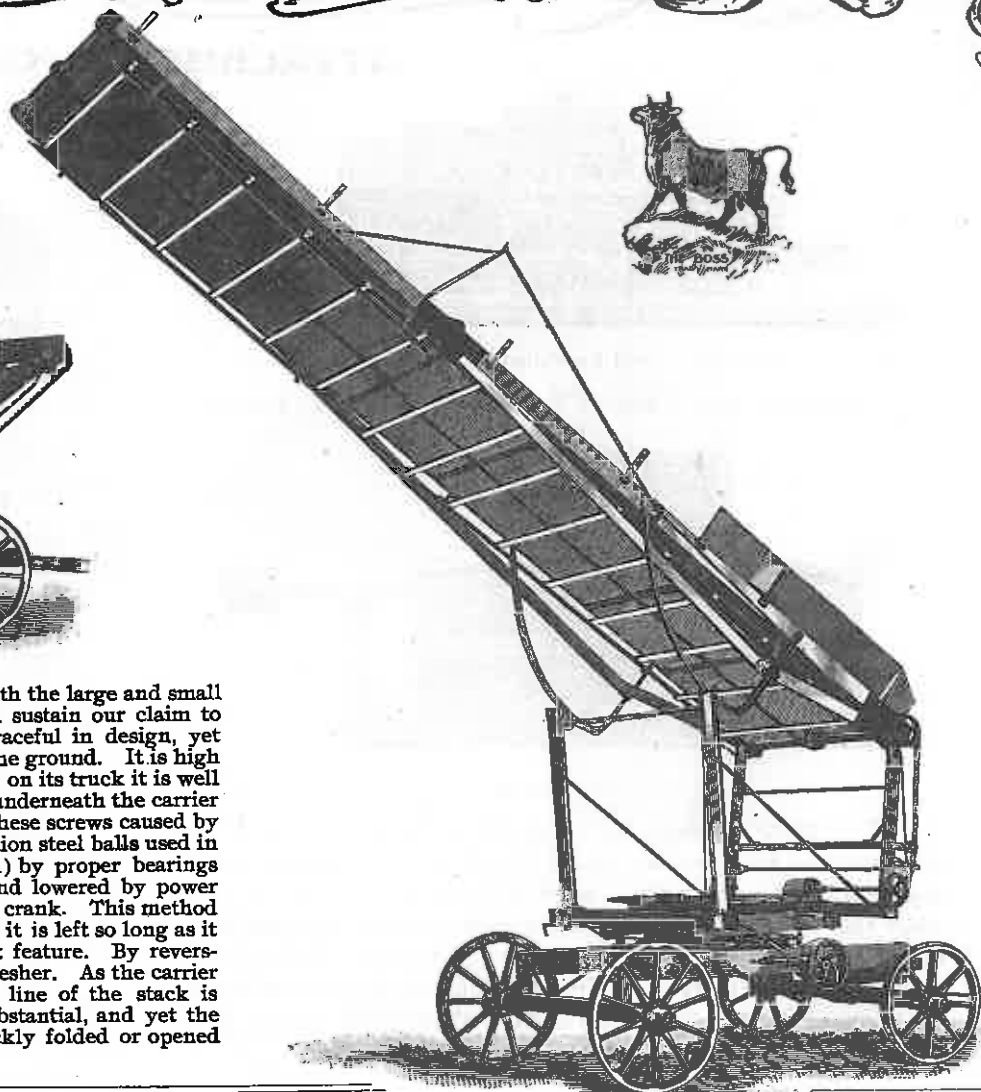
Protects and saves wear of belt and time of the thresherman. Price, \$3.00.

THE RUSSELL & COMPANY

THE MASSILLON AUTOMATIC STACKER.



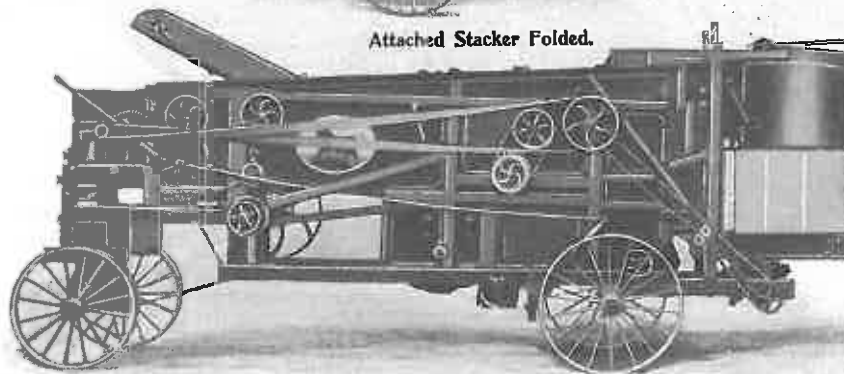
Our Automatic Stackers are made in two widths, to suit both the large and small machines. The following are some of the leading points which sustain our claim to superiority for the "Massillon" Stacker: It is light and graceful in design, yet thoroughly substantial. It stands firm without bracing from the ground. It is high enough above the wheels to allow of short turns. When folded on its truck it is well balanced. It is raised by means of a cross shaft extending underneath the carrier and engaging at each end with upright screws, the friction on these screws caused by the weight of the carrier being greatly reduced by anti-friction steel balls used in upper bearing. These screws are supported (top and bottom) by proper bearings carried upon wooden uprights or supports. It can be raised and lowered by power by simply throwing a shifting lever, or by hand by means of a crank. This method of operating insures the stacker remaining in whatever position it is left so long as it is desired, the level being always maintained—a most important feature. By reversing a single shaft it can be driven from either side of the thresher. As the carrier rises it moves outward from the thresher, so that the center line of the stack is maintained whatever the elevation. It is the most compact, substantial, and yet the lightest on the market. The stacker can be easily and quickly folded or opened without touching the frame itself.



THE RUSSELL & COMPANY



Attached Stacker Folded.



SATTLEY ATTACHED STACKER.

We build under license from the owners of the patent, the Sattley Attached Stacker and will be prepared to furnish them on order. The patentee claims for it the following:

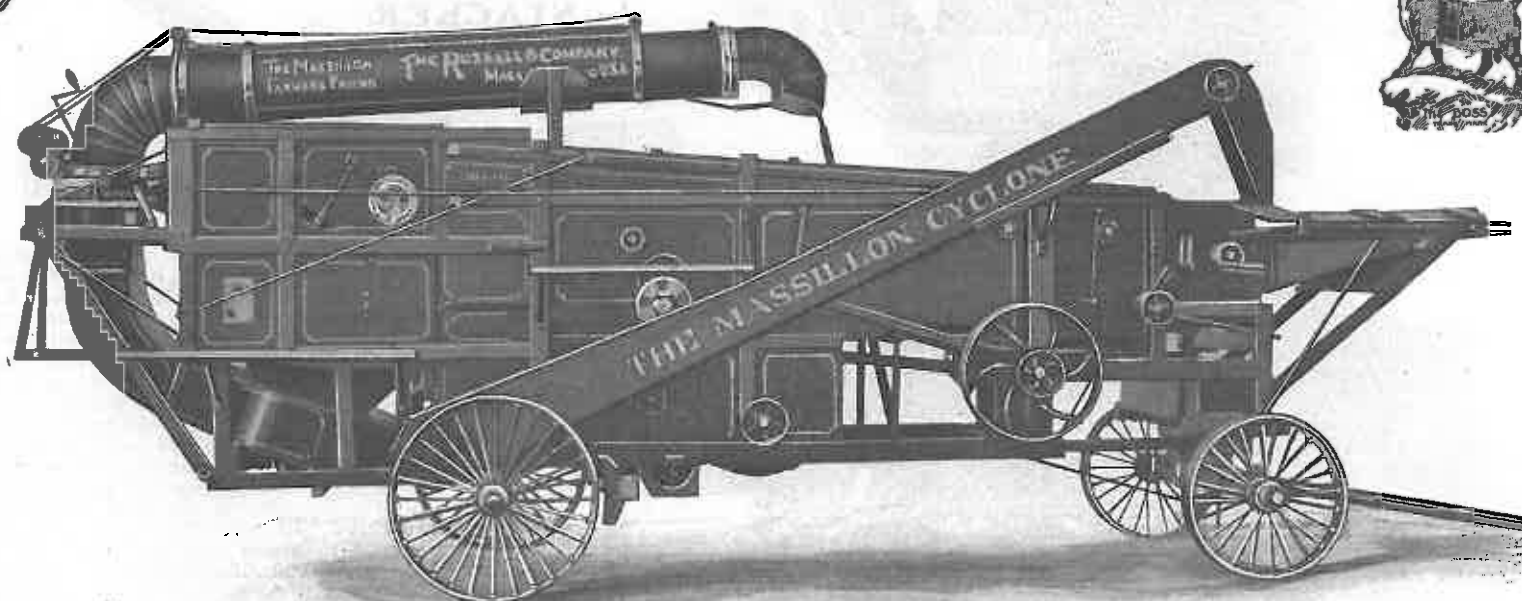
"In this stacker we have not followed out the lines laid by any other machine previously invented; we have adopted entirely new principles of our own and we believe without a doubt that they are the correct ones."

This stacker oscillates in a half circle or almost any part of a half circle. The oscillating gear is directly under the machine where it can easily be gotten at to be oiled and taken care of.

Advantages. One of the great disadvantages of all Attached Stackers heretofore constructed, is that they pull away from the stack after it gets up a certain height and almost preclude the possibility of making a good stack,—at least without a great amount of effort. To avoid this we make the first section of the chute on our stacker stationary as far as any up-and-down motion is concerned. To make this sufficiently strong we run two rods from the top of the first section

forward to the top of the separator on a pivot which is directly over the center of the shaft which oscillates the machine. The first chute stands almost perpendicular, and to insure that the straw will be elevated, we place a small independent riddle that runs a little faster than the main riddle. The straw gets between these two riddles and is compressed, taken up and thrown upon the second chute. The main riddle runs over the entire length of both chutes, and it is so constructed that changing the position of the second chute does not affect this riddle in any respect. By reason of this stationary chute we are able to make the upper chute very long, and the point, where it pivots to elevate it, being about eleven or twelve feet from the ground, the amount that the discharge end of the stacker moves forward or backward in raising or lowering it is reduced to a minimum. The old method of attaching a chute at the bottom of the separator, and raising or lowering it on a pivot at the bottom of the machine, makes the discharge end draw too rapidly.

Prices and terms are rigidly fixed by the patentees and cannot be varied.

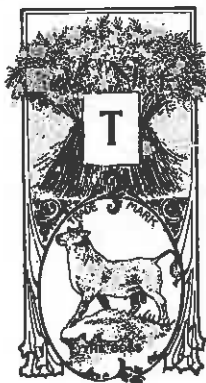


The "Massillon Farmer's Friend" Stacker and Cyclone Thresher.

Stacker Folded for Moving.

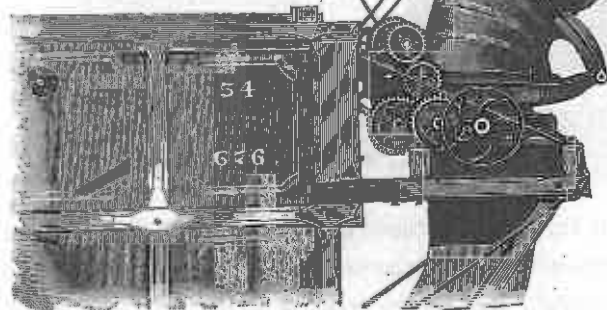
THE RUSSELL & COMPANY

THE "MASSILLON FARMER'S FRIEND" PNEUMATIC STACKER.



THE position of the Wind Stacker is thoroughly established wherever threshing is done out of doors. In barn threshing it is being used to some extent. Its advantages are: Fewer men to pay and feed; more uniform and sometimes better stacks; greater convenience in the better access and egress afforded to teams; freedom from dust; saving in time in moving and setting. The advantage in relief from the most difficult work—that on the stack—and the saving in the keeping of the men no longer needed, warrant an additional charge for its use.

This cut shows the method of raising and extending the chute and tilting the cap at the end of the chute. (Patented.)



Improved Revolving Extension Hood.

The Stacker we offer is known as the "Massillon Farmer's Friend." It is built under license from the Indiana Manufacturing Co., which company controls the patents on all wind stackers. Prices and terms are rigidly fixed by the patentees and cannot be varied. Our Stacker, while licensed as stated, is peculiar to ourselves, having been designed and introduced by us. We claim for it decided advantages over the well-known patterns, for the reasons which follow.

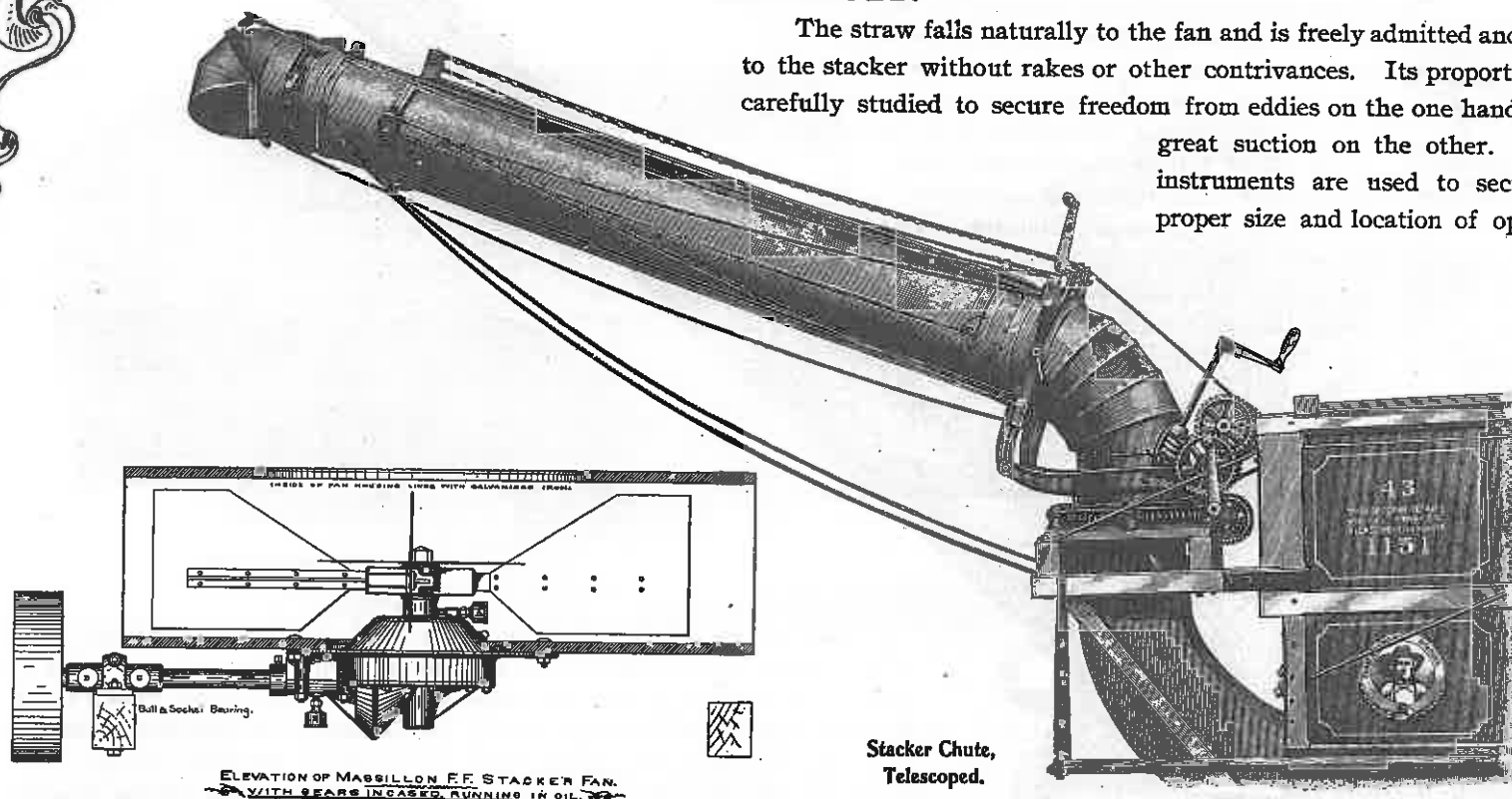
It is more convenient in its plan and arrangement than any other. In convenience of access to shoe and riddles it is unsurpassed.

THE RUSSELL & COMPANY

THE "MASSILLON FARMER'S FRIEND" PNEUMATIC STACKER.

CONTINUED.

The straw falls naturally to the fan and is freely admitted and carried to the stacker without rakes or other contrivances. Its proportions are carefully studied to secure freedom from eddies on the one hand, or too great suction on the other. Special instruments are used to secure the proper size and location of openings.



ELEVATION OF MASSILLON F.F. STACKER FAN.
WITH GEARS INCASED, RUNNING IN OIL.

The position of our fan drum—at an angle between the vertical of the Uncle Tom and the horizontal Nethery—is the easiest and most natural for the work to be performed.

This, with the correct proportions, easy curves and freedom from short turns, gives us, on the one hand, comparative freedom from straw breakage; and, on the other, a light-running stacker.

THE RUSSELL & COMPANY

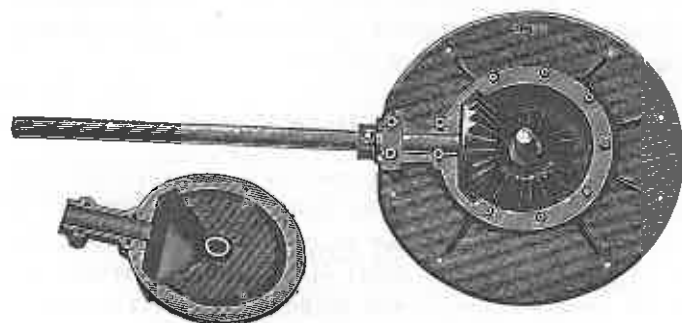
THE "MASSILLON FARMER'S FRIEND" PNEUMATIC STACKER.

CONTINUED.

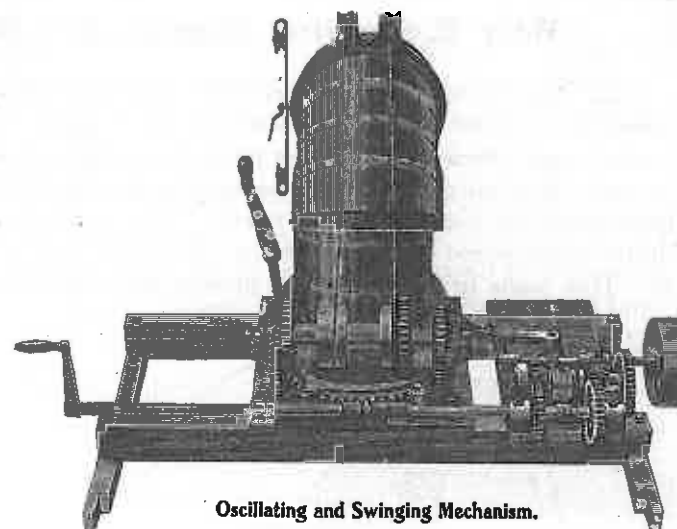


Stacker Fan and Self-Contained Gear.

To drive this Stacker we have devised a self-contained gear case, by which perfect alignment of gearing is obtained, without liability to derangement by the warping or shrinkage and expansion of wood work. Further, the gearing runs in oil so that constant lubrication is secured, with freedom from cutting of gears. We avoid turning the corner with a belt, which, owing to the strain necessary, is very severe upon bearings, and by saving in friction we add considerably to the ease of running.



Self-Contained Gear—Runs in Oil.



Oscillating and Swinging Mechanism.

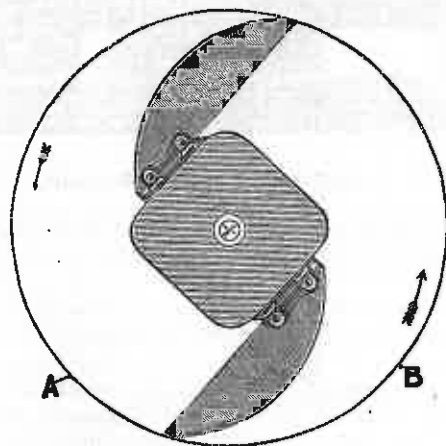
We have placed our mechanism for swinging the stacker (which can be done by hand or automatically) and for telescoping and raising the chute on about a level with the cylinder. We do this to give the man in charge a good command over the stack, yet do not raise the chute and other mechanism so high as to prevent access to barns, or use where barn threshing prevails. The turntable and starting of the chute are nearly five feet higher from the vertical than the Nethery, and two feet lower than the Uncle Tom. This higher start makes our nineteen feet of chute (when extended) the full equivalent of a much longer Nethery. When moving, we swing the chute directly over the machine, distributing the weight evenly. In the matter of weight we claim decided advantage for our stacker. Without sacrificing but rather adding to strength, we have less weight to carry, and that nearer the front than either stacker named.

THE RUSSELL & COMPANY

THE "BOSS" (Lindsay) FEEDER.

Why Revolving Knives Are Better Than Knives on Crank Arms.

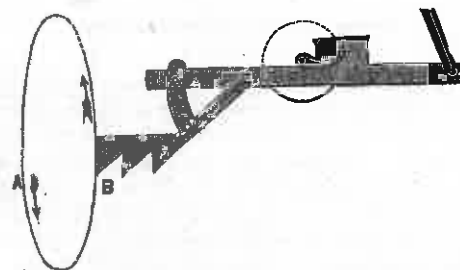
In considering a self-feeder the question always arises as to whether a knife on a crank arm or a revolving knife is more efficient. We use a revolving knife as shown in cut. It is not speeded fast enough to throw a bundle, and the shape of the knife gives a draw cut. The travel of the knife in the straw would be represented by the dotted line from A to B. This tends to straighten out bundles which may have



been pitched on cross-wise. The draw cut also pulls off the top of the bundle and spreads it at the same time. Our band cutter knives run within three-eighths of an inch of the ends of the spikes in the conveyor slats. They not only cut the bands, but enter deeply into the bundles and partially distribute them. They

accomplish this without chopping up the straw as much as is done by a knife on a crank arm.

The motion of a knife on a crank arm is shown by the dotted line in the cut. The motion of this knife in the straw is largely up and down, acting as a chopper to hash up the straw instead



of tearing it apart and distributing it. This mechanism, no matter how well made, cannot prove durable. Accordingly, we use revolving knives as first shown.

Knives.

Our knives are high grade crucible steel and tempered in oil, so that they remain sharp a long time. They are serrated like a sickle, and are much superior in quality to common sickle sections. One spring cotter holds each knife in position, so that they are easily removed for grinding or replacement. The advantage of having knives so easily detachable will be readily appreciated.



THE "BOSS" (Lindsay) FEEDER—Continued.

Ordinary Method of Feeding.

In hand feeding, and in other machine feeding, the straw is fed in a solid stream into the throat of the cylinder. Strictly speaking, it is not fed at all, but is simply presented to the cylinder so that the front corners of the cylinder teeth catch it and pull it in, and as it is more or less matted together it goes into the cylinder in bunches. Inasmuch as only the ends of the cylinder teeth catch any straw, it passes through the concave teeth close to the concave staves. While cylinder teeth are



Showing How Teeth Wear in Ordinary Feeding.

made from two and one-half to three inches in length, only the outer inch is used in threshing, on account of the way in which the grain is commonly fed. The wear of the cylinder teeth confirms this statement. In the usual method of feeding, the cylinder teeth catch the straw in small bunches. This may not be noticeable to the naked eye, for the reason that the cylinder teeth have a speed of about a mile a minute, but between each bunch a considerable area of the cylinder passes without carrying any straw.

Our Method of Feeding.

Our second set of knives are not band cutters, although they will cut any bands that should happen to pass the first set of

knives. The second set of knives are distributors, and are sharp to enable them to freely enter the straw.

These distributing knives revolve much faster than the band cutter knives, and tear the straw from the front knives and from the carrier below, and throw it in a spray into the entire top and front of the cylinder. The straw when thus thrown is thoroughly separated. In this principle our feeder differs from all others, and in this lies its success.

In throwing the straw over the surface of the cylinder, the feed is constant and even, and in delivering into the throat of the cylinder. *It increases the capacity of the cylinder, and prevents slugging and breaking of concaves.* The mechanism required to feed in this method is fully covered by letters patent.



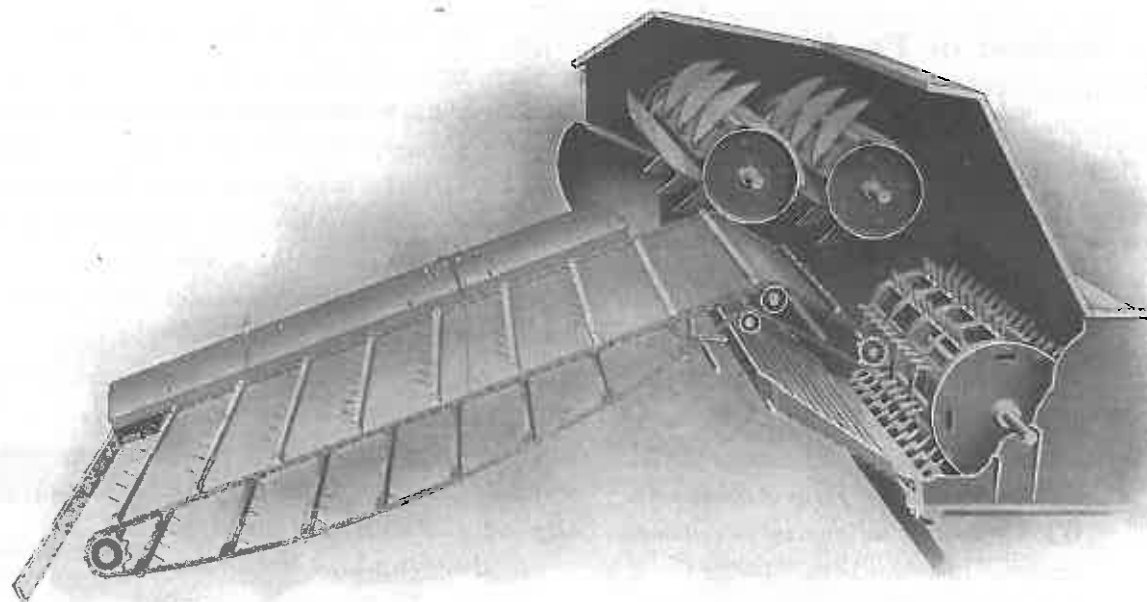
Showing How Teeth Wear with Lindsay Feeder.

Simplicity.

As will be noticed in the cuts, this feeder is extremely simple. There are no parts which need attention in the way of adjustment. There is nothing complicated in the machine, and nothing which can get out of order.

THE RUSSELL & COMPANY

THE "BOSS" (Lindsay) FEEDER—Continued.



You Cannot Get the Correct Idea of this Machine Without Reading the Description.

Automatic Feature.

Whenever more grain passes to our distributor knives than they can properly distribute, or whenever there is straw between the distributor knives and the cylinder, as there may be when it comes to the cylinder faster than the cylinder can take it away, the distributor knives carry up the excess straw and it passes over both sets of knives and drops onto the carrier ahead of the first knives, to go in again. Thus, automatically, without any complicated mechanism or a single part to regulate or wear out, this feeder supplies the cylinder with no more grain than it can take without slugging.

Winding.

The winding of straw on the knives and knife shaft has bothered operators of many feeders having revolving knives, and for this reason there may be a prejudice against revolving knives. It is almost impossible to place such stationary guards around the knives as will prevent them from wrapping in some conditions of straw. *We need no guards to prevent winding.* One knife of the band-cutting set runs close to one knife of the distributing set, and each laps by the other up to within one-quarter of an inch of the drum. Thus each knife is cleaned by one knife of the other set, which absolutely prevents either set of knives from winding.



THE "BOSS" (Lindsay) FEEDER—Continued.



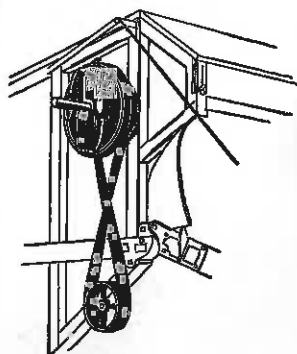
Showing Left Side of Feeder.

We sell this machine under a liberal warranty. Write us for any further information. Let us give you the address of parties using the feeder, so you can investigate for yourself.

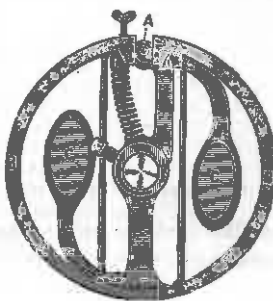
THE RUSSELL & COMPANY

THE "BOSS" (Lindsay) FEEDER—Continued.

GOVERNOR. Our governor prevents grain from getting into the cylinder without sufficient motion to thresh it. It is extremely sensitive. A variation of fifty revolutions per minute in the speed of the threshing cylinder will stop or start the carrier rake. This is closer regulation



than can be had with an engine governor on a feeder. It consists of a pulley and friction rim in one casting. This is placed loose on the front knife shaft. Inside the friction rim, fastened to the shaft is the spider shown in the cut opposite. The loose pulley is for the belt which drives the carrier rake. When the speed of the shaft is sufficient the centrifugal force moves the weights "C" outwardly, thus turning the wedge block "A," which expands the ring "B" making it engage the friction rim outside of it. The ring "B" and rim it engages are turned to perfect surfaces so that they engage nearly their whole circumference at once, making a positive grip. The governor is easily set, by adjusting with thumb screw, the tension of the spring which the weights must overcome.



CONSTRUCTION.—The material used is the best that money can buy. All the lumber is kiln dried. Most of the castings are malleable. The shafting is cold rolled steel, and not ordinary bar steel. The boxes are babbitted and made in halves, so that the wear can be easily taken up. The entire inside of the machine is lined with sheet iron, to prevent the grain from wearing away the woodwork.

POWER. We do not mean to say that this feeder runs itself, but it does feed the cylinder so much better than is usually done by hand that the separator requires less power which offsets the power consumed by the feeder. However, with this feeder faster work can be done than in hand feeding, and this may add to the labor of the engine. Having revolving knives the feeder requires less power than any feeder which has knives on crank arms.

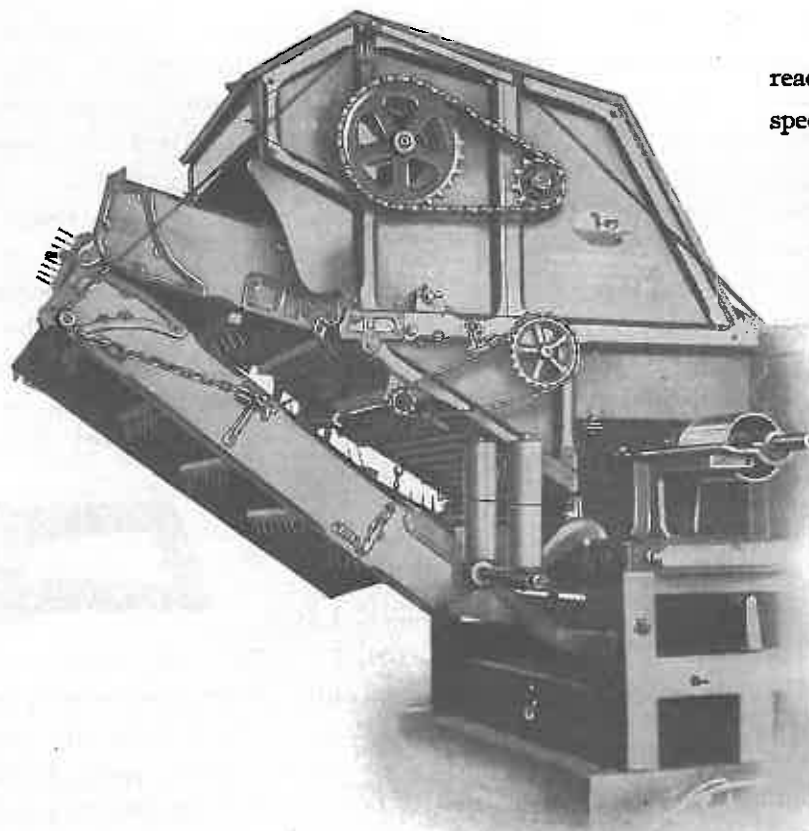
FOLDING CARRIER. We call special attention to the manner in which the carrier is folded. To fold the carrier the chain is hooked up in such a way that it remains tight all the time the carrier is being folded. It accordingly does not get off the sprockets or come apart when folding or unfolding. No legs are required to sustain the carrier. The carrier has two sets of hinges, and one part counterbalances the other, so that a ten-year-old boy can handle the carrier in folding. The rods on which the carrier hangs have chain ends with hooks to enable the operator to hang the carrier slanting as shown in cut, or more nearly level as may be desired. The slant of the carrier can be easily changed while the machine is in operation.

THE RUSSELL & COMPANY

THE "BOSS" (Lindsay) FEEDER.

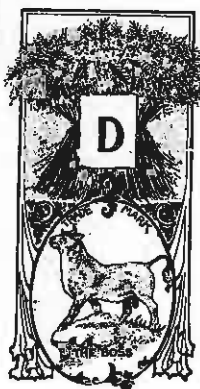
CONTINUED.

Showing The "Boss" Feeder Folded, ready to move. It folds so close that no special tongue is required.



THE RUSSELL & COMPANY

THE "BOSS" (Lindsay) FEEDER—Continued.



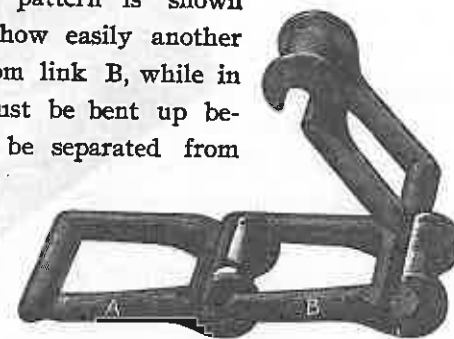
DIMENSIONS. The highest point of feeder is forty-seven inches above the center of the cylinder shaft. The top of feeder is accordingly no higher than the top of stacker, and no higher than the top of tailings elevator. The carrier when extended makes a table seven feet long to receive bundles. It folds so close to the machine that it is not necessary to lengthen the pole as with other feeders. The center of gravity when folded is only sixteen inches ahead of the front of the separator, putting the weight over the front axle, and not hanging it away off in front of the separator.

WEIGHT. Our 36-inch feeder with all of the parts necessary to attach it, weighs 830 pounds. It replaces parts weighing 280 pounds, making a net additional weight of only 550 pounds. Will the reader please note we have not made a claim to have the lightest feeder, or given a "shipping weight." The weight has been stated truthfully just as you may wish to know it. The weights of the different sizes will of course vary accordingly, but they are made as light as is consistent with the work required of them.

PAN. The pan is corrugated, making a positive feed for tailings and litterings. The inner end of pan slides on a

plate at the top of concaves. The outer end hangs in a bail. It is quickly removed by loosening two thumb nuts, giving free access and good light to work at the cylinder teeth. There are no litterings under the feeder to clean up when finishing a job.

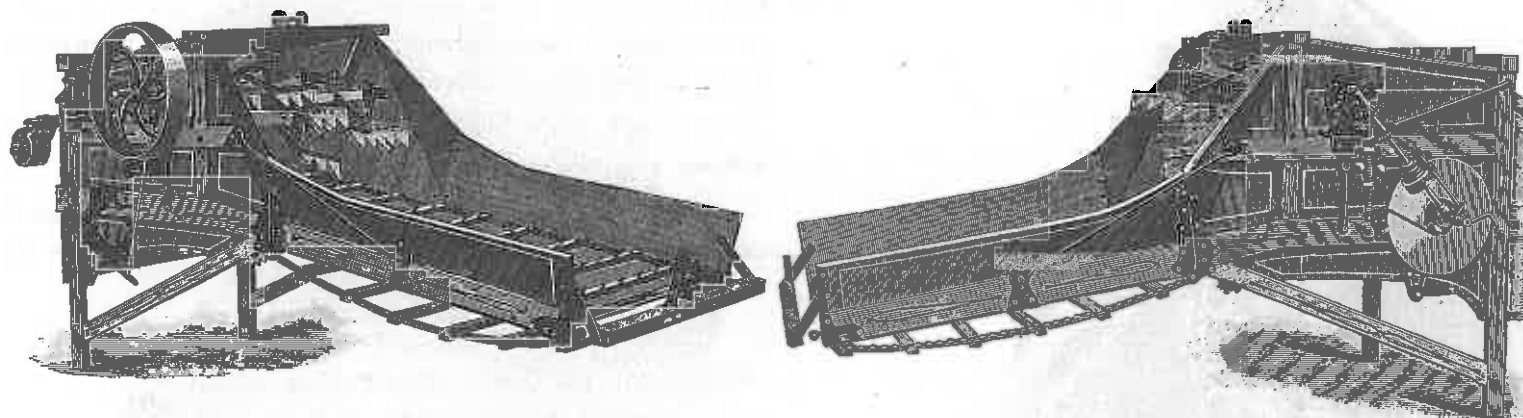
CHAIN. Our carrier chain is special pattern and is shown by link "A" in the cut. The ordinary pattern is shown by link "B." Notice how easily another link can be separated from link B, while in link A the small lip must be bent up before the next link can be separated from it. This special chain will prevent the rake from getting into the threshing cylinder or coming apart while moving or folding.



DURABILITY.—The knife drums are perfectly balanced, and as all parts of the feeder have rotating motion it makes no noise, neither does it jar nor shake the separator. A machine which jars and shakes cannot prove durable. The principal objection to many feeders has been the fact that they would hardly last through two seasons' use, and that the expense of repairs to keep them in operation exceeded their utility. Our feeder will outwear a separator.

THE RUSSELL & COMPANY

THE PARSONS BAND CUTTER AND SELF-FEEDER.

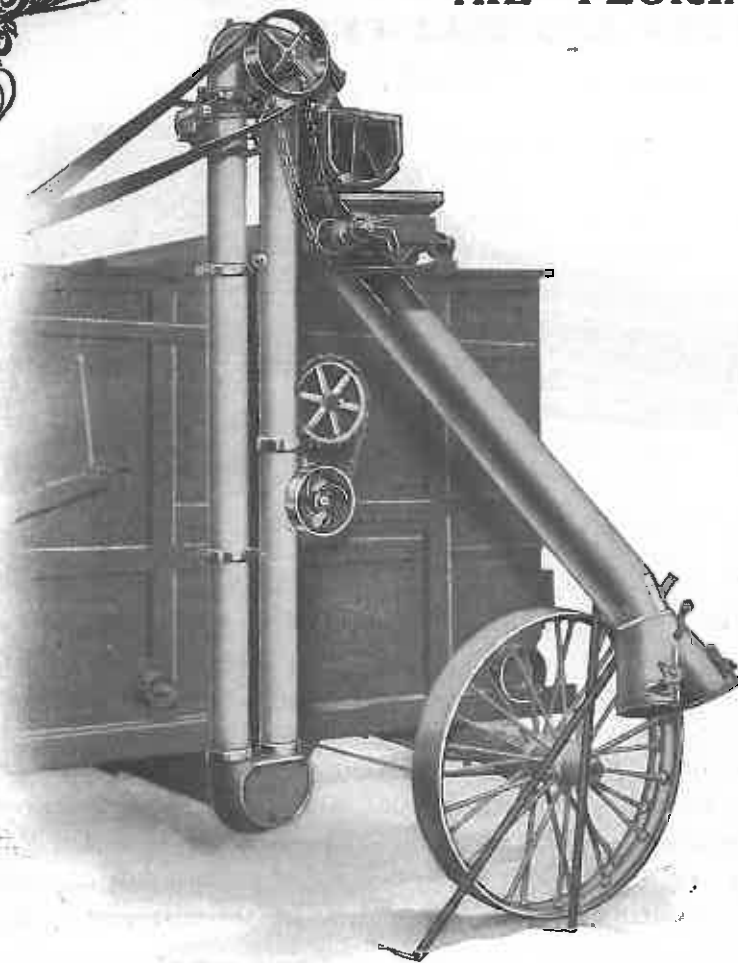


WE have again arranged with the manufacturers of the Parsons Band Cutter and Self-Feeder, for their feeders and will be prepared to furnish them on order, but no quantity will be carried in stock, and orders will have to be filled mostly direct.

For further information and description we would refer patrons to the manufacturer's catalogue which will be sent to any interested person upon application. While this feeder is well known, having been in use and sold by us for several years, yet it is not warranted to us by the manufacturers, except as to material and workmanship, and any defective part will only be replaced upon the return of the part claimed defective,—which must clearly show the defect—and prepayment of transportation charges. No parts will be replaced after the end of the first season. The manufacturers of "The Parsons Feeder" say that the best belt and rubber rolls obtainable are furnished, but these being subject to great wear and misuse, are not warranted by them, hence none of these will be replaced by us.

THE RUSSELL & COMPANY

THE "PEORIA" WEIGHER AND WAGON LOADER.



Weigher, with Bagging Attachment.

We have contracted with the manufacturer of the Peoria Weigher for their latest improved attachment, and will be prepared to furnish them promptly. They are so well known that a brief mention of advantages claimed for them will suffice, viz.:

A Double Tube Steel Elevator. A Register or Tally Box, without a spring, one that cannot get out of order.

It saves every grain from the thresher, and keeps it much cleaner than when measured by hand, not being exposed to the dirt and chaff from the riddles.

It will deliver the grain direct into wagons, sacks, etc.

By filling the hopper and setting the weight to dump at the measure given, it becomes an automatic measure at will.

It will elevate, weigh, register and deliver grain at the rate of ten bushels per minute and do it accurately.



It is in all, light running, compact, simple in construction, durable and well finished—being made in first-class manner throughout—and fully warranted.

A special arrangement is provided for use in the Northwest, to carry the grain into a wagon, yet leave a driveway next the machine.

We can also furnish a Plain Elevator (without weighing device) with swinging spout for loading into wagons.

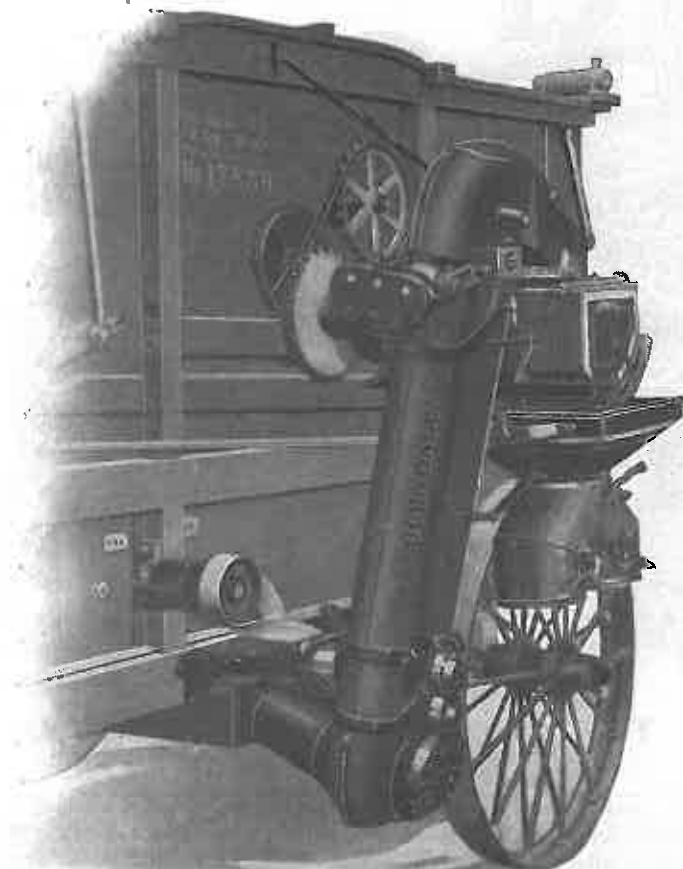
THE RUSSELL & COMPANY

AUTOMATIC WEIGHING STEEL BAGGERS.

Glendale Bagger.

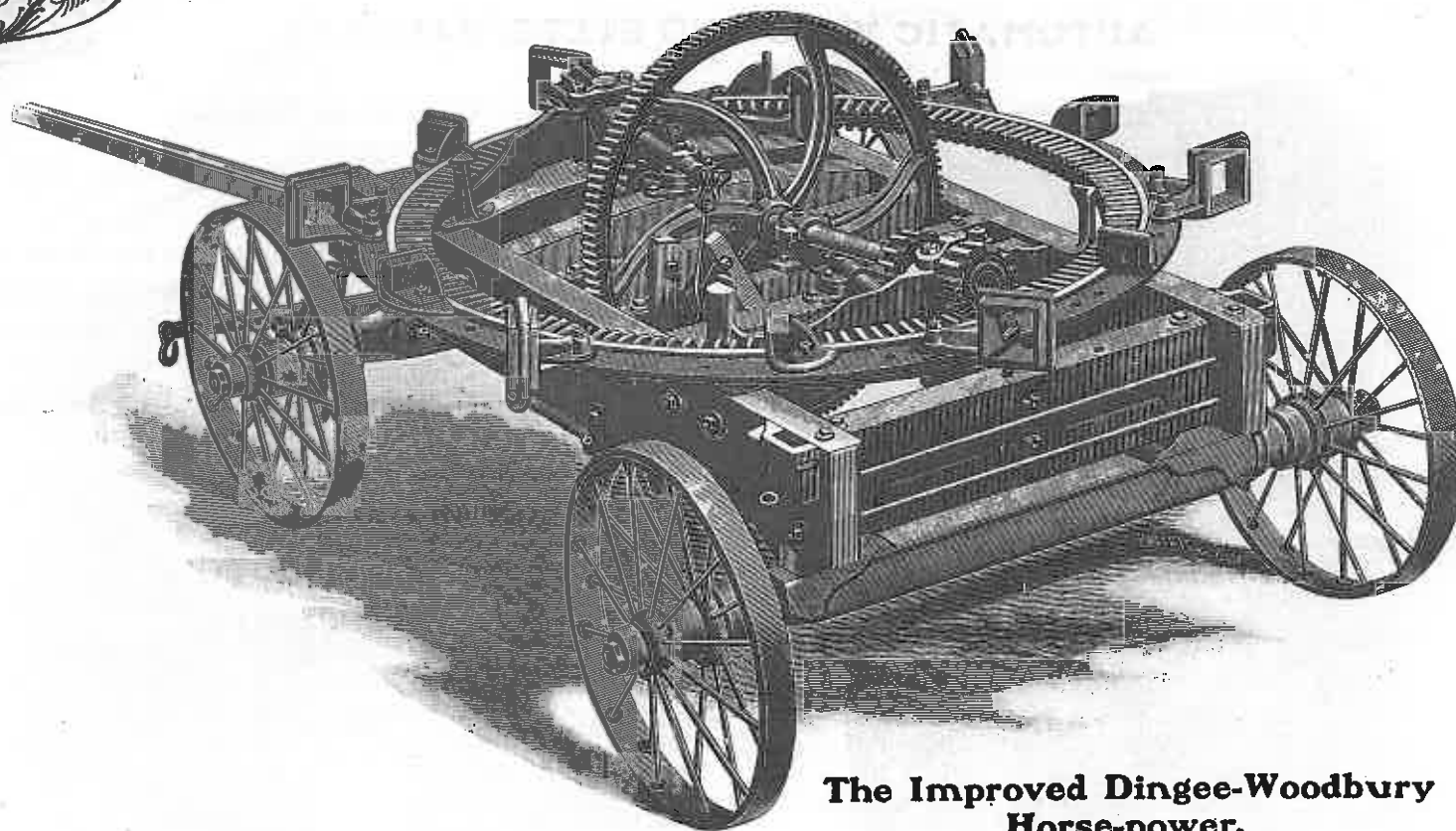
There is a demand for a bagger in localities where all grain is sacked.

We would call your attention to the illustration of the Glendale Steel Bagger, which has all the desirable features of the Peoria Weigher; will elevate, having all the capacity of the Peoria, weigh and measure, and keep an accurate record of same; in fact, all this part of the machine is exactly like the Peoria.



The arrangement for holding sacks is something new, and is certainly the best and most convenient lock in use—no danger of tearing the sacks, no hooks to injure the hands.

In ordering, be particular to specify Glendale Bagger.



The Improved Dingee-Woodbury Horse-power.

The cut shows the Dingee-Woodbury Horse-power as built by us. We continue to offer this most popular power to all in want of horse-power machines. It is always furnished mounted on four iron wheels.

The same power is adapted to either eight, ten or twelve horses, by different arrangements of the levers, supports and brackets. This power is very strong and compact. For higher power we offer a heavier, stronger

pattern, suited to fourteen horses. The drop-gear arrangement allows of an adjustment to almost any desired speed. We are prepared to furnish it arranged to give either 72, 100 or 107 revolutions of the tumbling rod to one revolution of the master wheel. The 100 speed is usually furnished by us, being that adapted to our standard geared thresher, and this speed will be given in all cases unless another is ordered.

THE RUSSELL & COMPANY

THE "BOSS" LUBRICANT.

Having determined to adopt solid oil or grease for lubricating our Farm Engines, and the more important bearings of Threshing Machines, we deemed it our duty to provide a suitable grease for this purpose, at a price that should place it below in cost as it is superior in use to the oil it supplants. To this end we arranged in 1895 to have manufactured expressly for us a special grease, especially suited to our customers' needs. We named this the "Boss" Lubricant as being particularly appropriate. No better grease can be made than this. Its purity renders it available as a salve for sores, scratches, hard feet, etc., on animals.

Its composition and freedom from impurities make it extremely useful as a softener and preservative of leather, which it renders waterproof. As an axle grease for wagons and carriages it has no equal. For shafting and wearing surfaces of metals or wood, it is by odds the most serviceable and economical lubricant ever offered. Properly applied, a single pound of this grease is the equivalent of more than a gallon of oil. It is not a carrier of dust or dirt to bearings, but effectually keeps them out. It is used only with compression cups,



easily controlled by the operator. It does not run out of bearings as soon as applied, but remains to lubricate when oil would disappear.

It will not gum, dry out or become rancid. It does not become hard in cold weather nor waste with heat. It is free from acid, which by its presence, has been a serious objection to many greases.

We do not hesitate to guarantee the results to be perfect and economical lubrication, wherever properly applied. The "Boss" Lubricant is sold in five pound tin buckets, bearing our trademark, at the uniform price of \$1.00 per bucket. Five buckets will be sent for \$5.00 paid in advance, to any R. R. station east of the Rocky Mountains, freight paid. This grease will be carried in stock by leading agents for the Russell Goods.

We pack with each engine and thresher equipped with grease cups a can containing a supply of grease sufficient to fill and refill all cups.

This grease is not sold to any other manufacturers, but is expressly made for us. Customers are cautioned against inferior greases which have been upon the market at higher prices.



THE RUSSELL & COMPANY

The Russell Engine hauling boilers
Weight, 80,000 lbs.



The Russell Engine hauling
tee rail near Asheville, N. C.

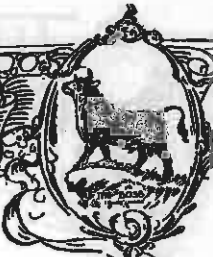


The Russell Engine
hauling saw logs.



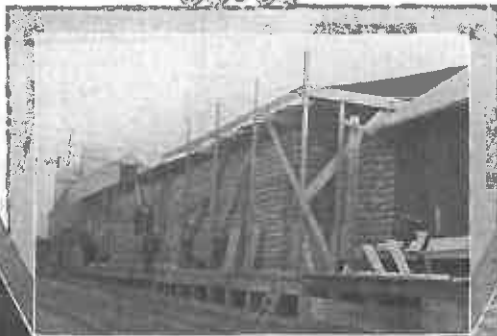
The Russell Engine hauling a steam boat.

THE RUSSELL & COMPANY

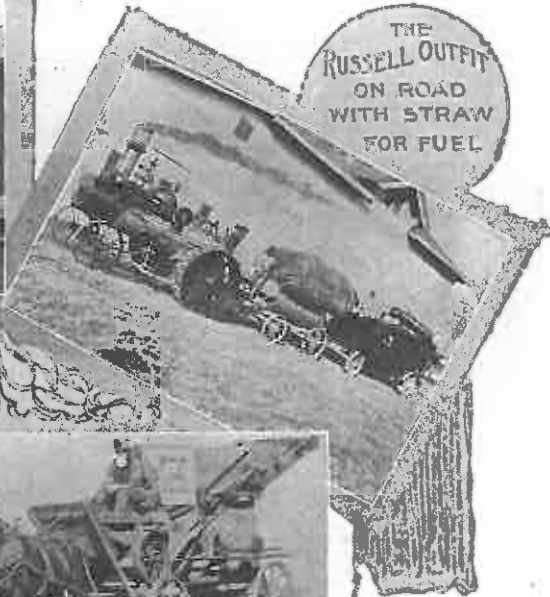


Clearing Land in California

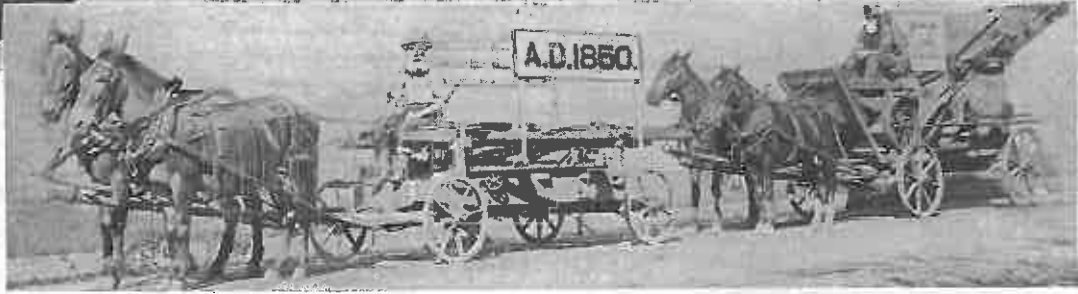




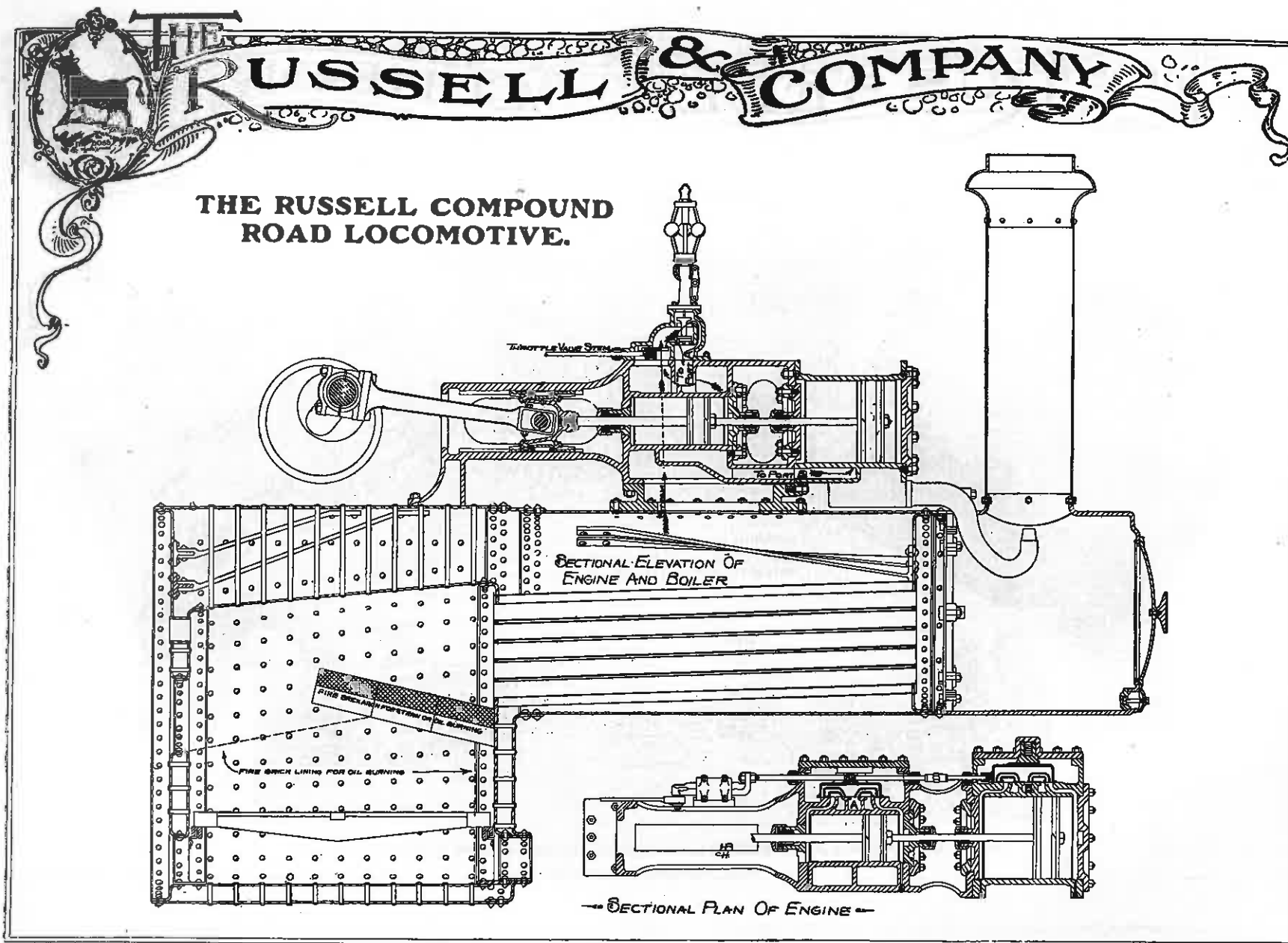
THE RUSSELL OUTFIT ON ROAD WITH STRAW FOR FUEL



500,000 BU. WHEAT THRESHED BY THE "CYCLONE" MACHINE IN THE PALOUSE COUNTRY-EASTERN WASHINGTON

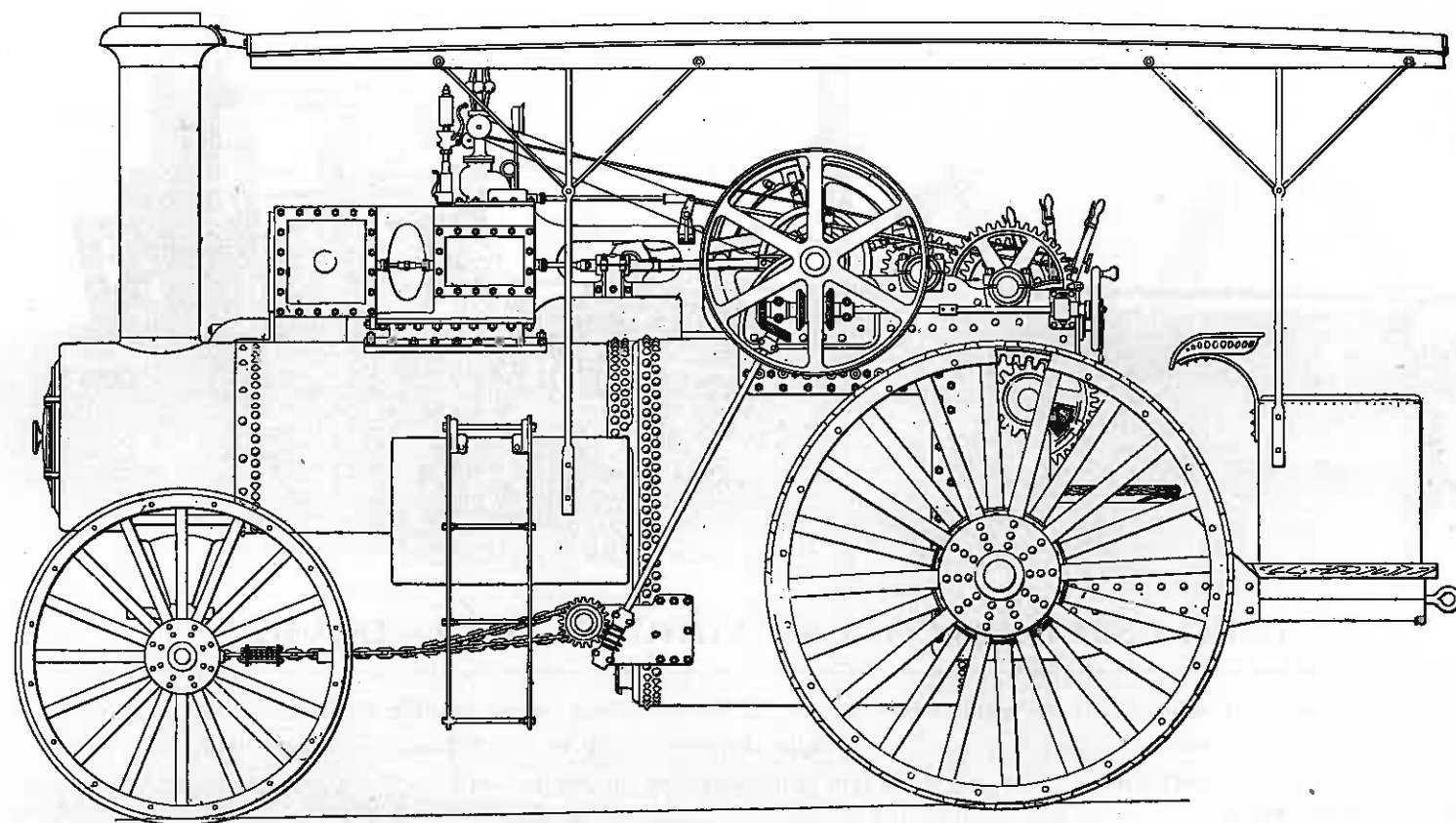


The old Apron Machine built by Russell & Co. in 1866, and purchased and used by Gen'l U. S. Grant on his farm near St. Louis, Mo.

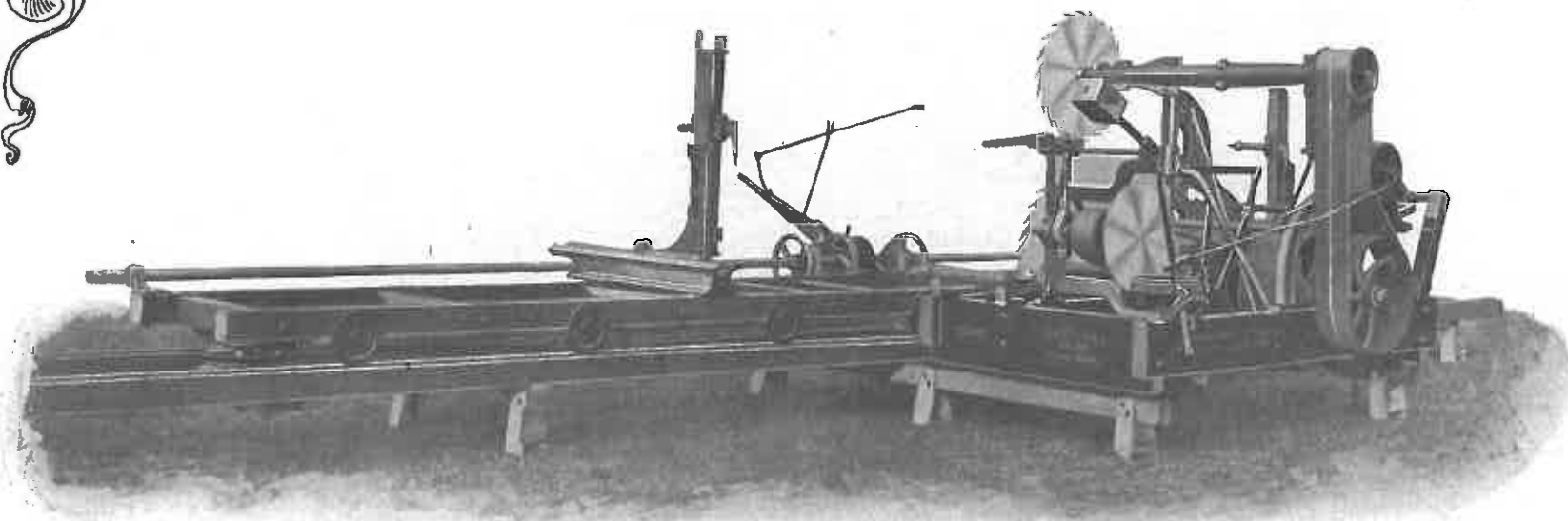


THE RUSSELL & COMPANY

THE RUSSELL COMPOUND ROAD LOCOMOTIVE.



THE RUSSELL & COMPANY

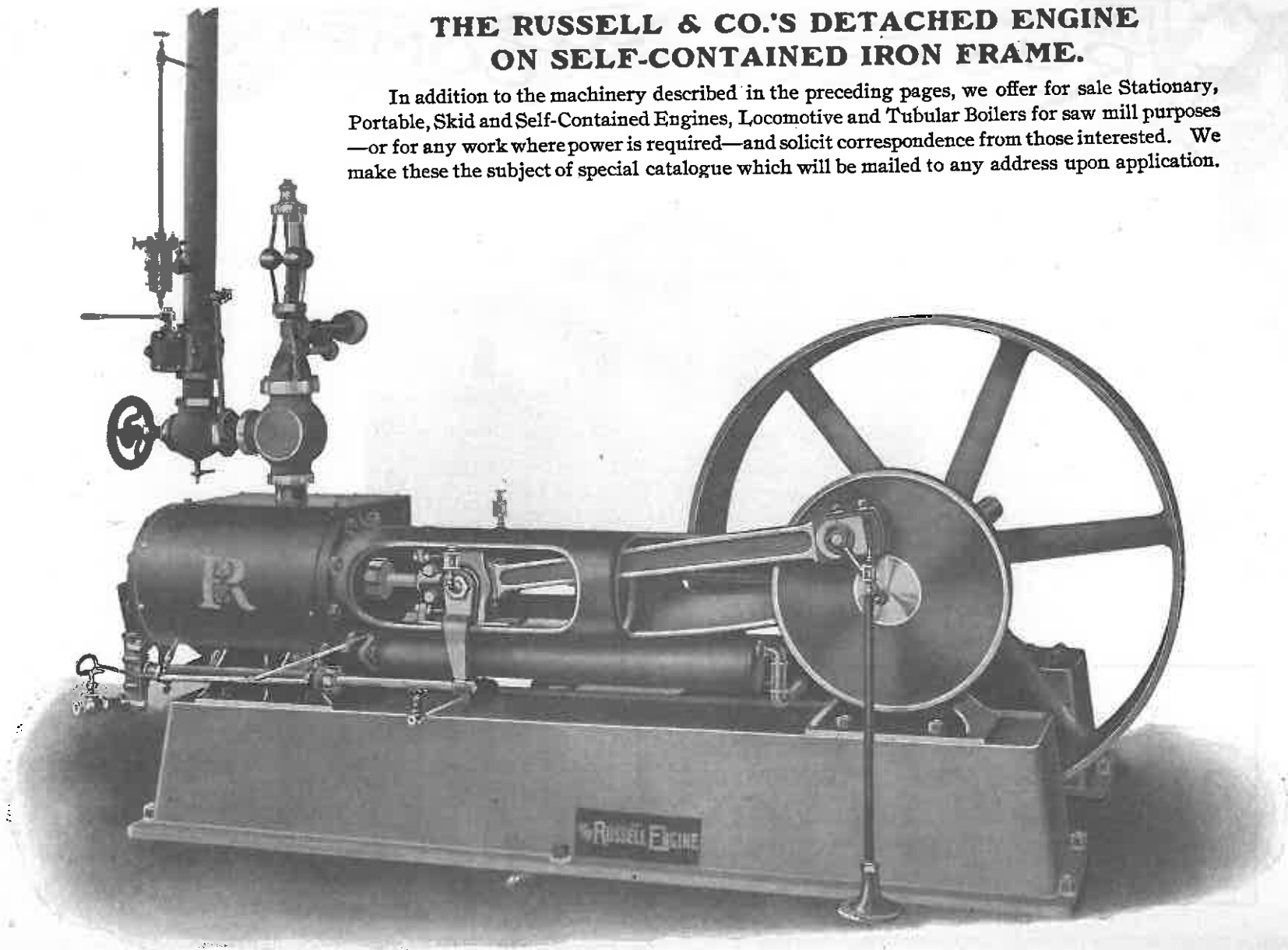


THE RUSSELL & CO.'S No. 3 (HEAVY) MILL—DOUBLE.

In addition to the machinery described in the preceding pages, we offer for sale a complete line of Improved Portable Saw-Mills, Portable Skid and Self-Contained Engines of our manufacture. Descriptive circulars will be mailed on application.

THE RUSSELL & CO.'S DETACHED ENGINE ON SELF-CONTAINED IRON FRAME.

In addition to the machinery described in the preceding pages, we offer for sale Stationary, Portable, Skid and Self-Contained Engines, Locomotive and Tubular Boilers for saw mill purposes—or for any work where power is required—and solicit correspondence from those interested. We make these the subject of special catalogue which will be mailed to any address upon application.



THE RUSSELL & COMPANY



Russell Engine Pulling House in California.

We extend a cordial invitation to all of our customers and friends to visit our exhibit in the Agricultural Building of the Louisiana Purchase Exposition at St. Louis.

THE RUSSELL & CO.

MADE BY
THE VERNER COMPANY
AKRON, OHIO

